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The Journal of the Fire Protection Profession Since 1877

Vol. 89, No. 12 DECEMBER, 1936 Member A.B.C.—A.B.P.

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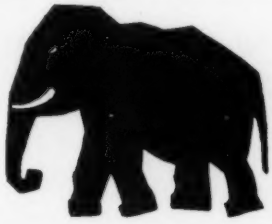

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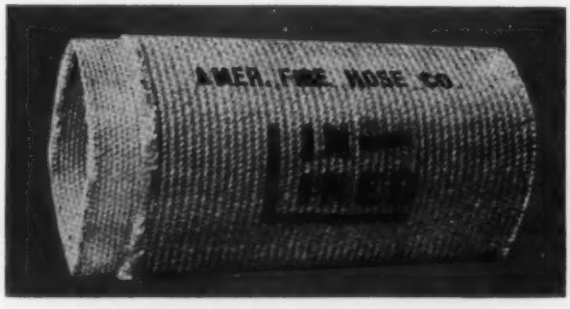

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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

ROBERT H. LOCKWOOD
Associate Editor

FRED SHEPPERD
Editor

N. N. WOLPERT
Assistant Editor

To all Our Friends in the Fire Service

Merry Christmas!

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● *Right* — Our Machine Shop - Lathe Department. Here are the heavy tools — milling machines, boring [illegible]

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Insurance Patrol, Summoned by A.D.T., Spreads Tarpaulins on Six Floors

At 6:35 P.M. on July 16, an A.D.T. Central Station in Chicago received a waterflow alarm from the supervised sprinkler system in a large metal manufacturing plant.* Fire Department and Insurance Patrol were immediately notified, and found that a fire in a spraying booth on the seventh floor had opened three sprinkler heads.

Serious water damage was avoided through the saving fact that the sprinkler was A.D.T. Supervised. Only the prompt response of organized forces—thus automatically summoned—could have prevented disastrous consequences. The sprinkler had to be turned off as soon as it completed its work of extinguishment, and effective salvage work was necessary to avert damage from seepage of water through lower floors.

An official of the metal concern wrote to A.D.T.: "The efficiency of your action was entirely proper and, in fact, essential. The Insurance Patrol was on the job with plenty of tarpaulins on all floors from the second to seventh. You can well imagine the amount of water coming from three sprinkler heads, but we are pleased to advise that the damage was nil."

* * *

Three cents on each one hundred dollars of insurable values is the 10-year loss average of properties protected by A.D.T. Sprinkler Supervisory and Waterflow Alarm Service! By preventing and minimizing losses, A.D.T. Protection safeguards continuity of premium income, and turns premium income into profit. These are among the important reasons why clear thinking, far-sighted insurance agents recommend A.D.T. Protection Services to their prospects and clients. Descriptive booklets will be sent on request

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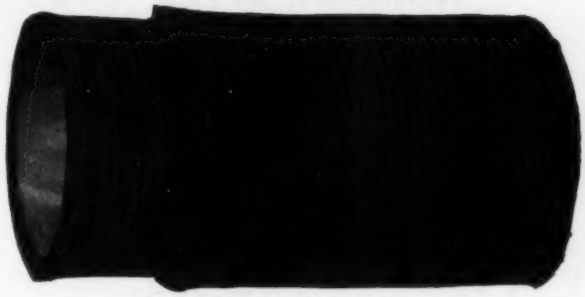

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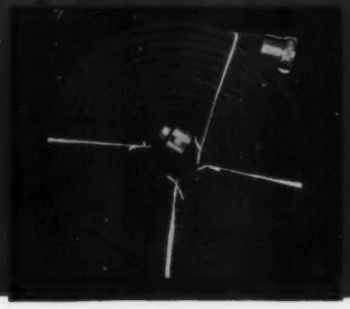
Manhattan chemists have perfected an original process for treating fire hose fabric with salts of rare earth metals which have radio-active properties. This process—exclusive with Manhattan—renders the hose mildew-proof and moisture-repellant, rot-and freeze-proof. It makes careful drying unnecessary and preserves the original strength and flexibility. Thus the useful life of Manhattan FIRE HOSE is limited only by natural wear or possible accident in use.



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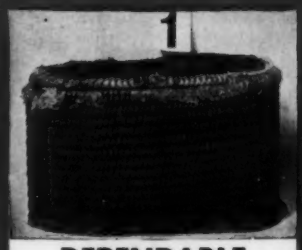
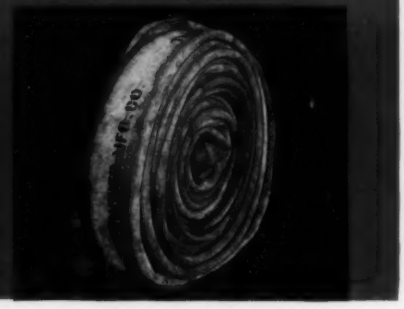
Easy to Handle

Hose made in the Manhattan way not only assumes a flat shape easily for folding, but retains the maximum strength of fabric while rounded out under pressure as the hose has been finally cured in its naturally round shape. Note in illustration how compactly Flat-Folding Hose coils and folds.



DEPENDABLE

Exhibit No. 1 pictured above proves that the dependability of Manhattan Fire Hose will never be endangered by mildew or fabric rot. This is a piece of Radio-Active Treated Manhattan Hose as it looked after having been buried for three months in a Florida swamp. It was unaffected by mildew. A sample with another treatment was badly rotted. Other stringent factory tests supplement this mildew test and service records add their stamp of approval.



DURABLE

Long Service Records

The illustration shows a length of Manhattan Fire Hose made in 1903. After 32 years it is still in excellent condition. Similar service records prove the durability of Manhattan Fire Hose — now further increased by the exclusive radio-active treatment.

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FIRE ENGINEERING

The Journal of the Fire Protection Profession

Volume 89 DECEMBER, 1936 No. 12

With the Editor

Does Fire Protection Pay? For the answer to this question you might make inquiry to the city of Defiance, Ohio.

For nine long years Chief Ellet campaigned for badly needed apparatus, but without success. Finally the inevitable happened: the million dollar plant of the Defiance Pressed Steel Company burned to the ground.

The city administration wanted the company to rebuild, and promised improved fire protection. Improvement was not made, and now the company is building a plant at Marion, Ohio. Thus Defiance has lost her leading industry and her largest taxpayer. The loss in taxes alone would pay for a thoroughly modernized department, to say nothing of the loss to local merchants through cessation of pay of those now out of work.

Cities may learn from their own experience that fire protection does pay, but it's a mighty costly way of learning.

* * *

Planning Ahead There would be many more first class fire alarm systems in service in the cities of this country if long range planning was followed. Because complete modernization of a system is a huge task, and an expensive one, many city administrations hesitate to take the first step. The total cost is the one thing they see, and this they compare with the annual city budget. The result is obvious. The work is postponed for a following administration to inaugurate.

The solution to the problem is not difficult, as Newark, N. J., found out. Several years back a plan for gradual modernization of the fire alarm system of that city was formulated. It called for gradual reconstruction of the system and the placement of boxes throughout the city.

On the basis of the original plans the work has gone forward, until today completion is in sight. The annual outlay has been comparatively small, but the installation when finished will be of the finest type and all of the city will be fully covered.

Many cities might profitably follow the Newark plan. Once started, its completion is certain.

* * *

A Warning! Down in Coaldale, Pa., last month, someone in a motion picture show cried "Fire," and a tragedy was narrowly averted. A boy turned a radiator valve and the hissing of steam was mistaken for a fire.

A score of children were injured in the panic which ensued, seven requiring hospital treatment. Two hundred and fifty children were in the theatre at the time, but *few were accompanied by adults.*

Relaxing of regulations which prohibit children in theatres unaccompanied by adults is paving the way for a holocaust. There's no time like the present for taking a vigorous stand against the growing laxity in protecting children attending shows.

Fred Oberfell

MAIN LIBRARY C

The Little Known but Frequent Story of

Fires in Incinerators

By JOSEPH H. FINK,
Secretary, Housing Committee,
Brooklyn Bureau of Charities

BANNERS galore are carried by children, dressed in white, in the many Fire Prevention Week parades that are held throughout the country. They carry such legends as "Keep your cellars and halls free from rubbish and reduce the fire loss." The people become excited.

An Incinerator That Fired
Fire was started in the struts beneath the roof at the base of the shaft, and traveled in concealed spaces in all horizontal directions.

That is why the parades are held, so that the public might become excited. The onlookers are excited into action and there are cleanups for a week. Then all is forgotten until the next display of fire apparatus and the white clad children in parades. That is, every one forgets but the Tenement House Department inspectors, who continue their work.

What have these inspectors found? They have tabulated, for example, that there are still 66,000 old law tenements in New York City which may burn up overnight. That is a serious matter, for in that number of beehives, there are nearly 2,000,000 persons. While the buildings themselves are of flammable construction, the laws require that the halls and stairs be of fire-retardent construction, and the cellar ceilings, covered with a fire-retarding material to minimize the fire hazard.

Fires in these old time tenements are being gradually reduced because of the watchfulness of the Housing Department, and the work of the insurance companies. In some areas policies will not be written, and therefore the owners of the buildings take every precaution to keep their properties free from fire. The public is told of the decrease in the number of old law tenement fires. The public applauds.

But the public seems to slight the new tenement houses that have been built in the past thirty-five years and which have been proven fairly safe from fire. During that period, not one life was lost in a fire due to construction.

Spreading Use of Incinerators

However, in the past ten years some of the most modern appliances have been introduced, even in the moderate priced multiple dwellings. Of the many improvements, one of the outstanding is the device to eliminate the carting of garbage and refuse from the buildings. Normally, the refuse cans were stored on the sidewalk in front of the building until the Department of Sanitation cart or truck came along to remove the contents. As an added convenience for the tenant, builders have been installing incinerators in the multiple type dwellings.

Now instead of humoring a garbage can, the tenant deposits the waste material into a chute. This does away with the janitor and the tenants' charges that the garbage is not removed as promptly as it should have been. The plan has its good points, for it does away with the unsightly garbage wagons and the awful stench that is left behind.

But actually the operation of the incinerators has not been very satisfactory. Complaints have been made about the odors resulting from the burning of the waste. Many fires have resulted, how many will not be known until the Fire Department makes a separate report.

Ironically, fires are supposed to originate in incinerators, for without a fire there would not be an incinerator. Basically, an incinerator is nothing more than a chute constructed of brick and lined with clay. The chute is open to the air at the top, and this opening is covered with a metal screen to prevent incandescent material from the fire box at the bottom of the chute flying out into the open. At the various floors, there are openings in this chute into which the tenants empty their wastes.

At first, when incinerators were

Fire Was Started in This Modern Building by an Incinerator

constructed, a fire was maintained at the bottom at all hours, and the waste was burned as it landed down the chute from the many floors. But in the name of economy, the owners did away with this practice as being wasteful. Now the waste is permitted to collect, and when the chute is well filled, a fire is started about midnight. The fire, however, creates sufficient draft to carry burning particles to the top of the incinerator where it is forced against the screen. Flames and burning particles coming from the chute, when viewed from a distance, resemble a miniature Vesuvius. Passersby have often sent in calls for the Fire Department in their excitement.

Many Fires in Brooklyn

In the Flatbush section of the Borough of Brooklyn, where some of New York City's finest homes are located, there have been a number of serious incinerator fires. Undoubtedly these fires are caused by openings that form in the incinerator walls as the result of some unknown mechanical or chemical action.

Some serious fires have started in the hanging ceilings. Since there is always a current of air in an open space, the flame is dragged along until it burns through the roof and down through the apartments. Damage is caused by the fire, but much more by water, and the tearing down of walls to reach the flames.

Your guess as to why the openings form after the incinerator has been in use is as good as mine. Possibly, the cause may be faulty construction, or from some action resulting from the hot air from the bottom of the incinerator meeting the cold air from the top. It is now up to engineers to devise a better masonry joint.

While there have been chimney fires before, few have penetrated buildings—smoke, occasionally, yes, but not fire. This may be due to the fact that there is less heat in a chimney than there is in an incinerator. The matter is very serious. The incinerator has become an essential utility.

Cheap Coal a Hazard

Aside from the incinerator, another prolific cause for fires in dwellings, is cheap coal. To keep down the cost of heating in the lower rental tenements, "coal-dirt" is used. To get a better draft for this material, a blower is started, and this sudden heat is often sufficient to fuse the bricks.

Now for a summary. While inspectors may remove rubbish in cellars and halls and thus eliminate some of the fire hazards, no amount of inspection will determine any defects in the incinerator, or in a chimney provided with a blower, until there is a blaze. One of two things may be required—more rigid supervision of the construction of such chutes and chimneys, or amending the Building Code so that a better class of material will be used.

DISCUSSION OF METHODS FOR RESTORING FROZEN FIRE HYDRANTS TO SERVICE

While There Are Many Methods for Thawing Frozen Hydrants, Not All Will do the Work in the Short Time Required

THE man within his well heated home has paid his fire insurance premium, and of course has paid his city taxes. Therefore, he feels that he has done everything possible to safeguard himself in the event of fire. Part of his taxes make possible the fire protection service provided by the Water Department and the Fire Department, and the insurance is some compensation for losses that may result, if fire does occur.

Outside his home there is a hydrant. It is one of the many that stick out like hitching posts in the residential part of the city. Not every home has a hydrant in front of it, because with the aid of hose lines and department pumpers, it is possible for one hydrant to safeguard a large group of houses.

However, if anything should happen to a hydrant that would put it out of service, the man within the well heated home, and those residing in the neighboring houses are deprived of a major fire-fighting defense which they believe the city is providing without interruption.

Fall Inspections

To insure continuous hydrant service through the winter months, it is the practice for the Water Department or the Fire Department, or sometimes a joint crew from both, to make inspections in the fall. When the inspections are made, the stuffing boxes are examined, and particularly the drip valves through which the water in the barrel drains out after the hydrant is used. If a hydrant barrel is free from water, the chief cause for a frozen hydrant is removed.

However, it is not possible to keep all hydrant barrels dry. Some hydrants are set in low, moist ground, and water seeps into the barrel. For such installations, the drip ports are closed.

But in spite all precautions, hydrants will freeze. Perhaps some thoughtless Street Department employee used the hydrant, or children, not realizing the seriousness of the prank, turned the operating nut.

When a frozen hydrant is found, it must be restored to service as rapidly as possible. Time is a very important factor, for no one can foretell which hydrant will be operated within the next few hours. Each should be considered the most important part of the fire protection system of the city, and since each hydrant protects a group of houses rather than one, the fire protection danger that follows when a hydrant is out of service, is greatly increased.

There are several ways to thaw a hydrant. Rock salt has been used with good, but very slow results. The salt is emptied into the barrel of the hydrant, and as salt lowers the freezing point, the ice is melted. This method is not to be recommended where time is an important factor.

Electricity Not Suitable

One hears so much about electricity as a thawing medium that the inexperienced fireman is apt to give this system first consideration. He reasons that since it has proven so effective in thawing frozen services, it must also be efficient for thawing hydrants.

But he forgets that a service has a comparatively small cross sectional area. A hydrant may be considered equal to a six-inch main. Therefore, while high amperage electricity has been effective in thawing a frozen service, it is a different matter when the transformer or generator is connected to a six-inch main. Since time is so important a factor, one must remember that possibly three hours may be required to thaw a hydrant electrically.

The basic rural method of thawing, that is the hot water kettle, is also used. With this plan, a tube is inserted into the hydrant barrel and hot water poured down the tube into the barrel. The hot water melts the ice and makes it possible to operate the hydrant. But one must have a good supply of hot water on hand, and lots of it. Hot water can hold a limited amount of heat, and this heat is soon given up to the ice in the hydrant.

There are several units now on the market which utilize steam for quick thawing. By means of good design the size and weight of the devices have been held down, so that truly, they are portable units. Primarily, they consist of a heating element and a steam boiler. For fuel, acetylene or some other quick heating substance may be used. The heater is used to convert the water in the boiler into steam. Unlike hot water, which can hold only so much heat and no more, steam can be charged with a large number of thermal units, depend-

(*Continued on page* 592)

Fire Brigade Makes Short Work of Paris Opera House Fire

Through the Efficient Work of the Paris Fire Department, and Working Against Many Obstacles, Fire in World's Largest Opera House Is Held to $80,000 Damage—How the Fire Was Fought

By W. W. SEABROOK,
Editor, "Fire," London, England

After the Weight Fell

The 3,300-pound counterweight, which fell after the cable melted, pierced through a stone floor and crashed into the musicians' lobby beneath.

THE first national theatre of France, and the largest and most splendid structure of its kind in the world, the renowned Paris Opera House, has been saved from destruction by fire solely by the organization, skill and devotion of the Régiment de Sapeurs-Pompiers de Paris, as the fire department of the French capital is officially known.

Lack of thermostats, foolish interference with sprinkler heads by workmen, evasion of safety regulations, and indifferent surveillance, combined with a delayed alarm constituted the problem that the Fire Department solved in an amazingly short period of time.

Just after 1 o'clock on Sunday morning, September 13, a fireman of No. 7 Company was returning to his station from protection duty at a theatre. He saw a glare above the Opera House and sent an alarm at 1:03 from a box in Rue Lafayette. At that time a swift first-aid tender from his station, in Place du Marche, Saint-Honoré, was on its way to the Opera House in response to a box alarm from Avenue de l'Opera, received at 1:02.

Arrival of Apparatus

This tender, arriving at 1:04, was joined a minute later by another tender, from Rue Blanche, and the following apparatus, according to the assignment card for the Opera House:

Pumper and aerial ladder from Saint-Honoré; pumper, aerial ladder and salvage truck from Rue Blanche; pumper and aerial ladder from Montmartre; one pumper each from Boursault and Chateau-d'Eau; and two pumpers from Chateau-Landon (one of 1,350 U.S. g.p.m., with a tender carrying 3,500 feet of 4½-inch hose).

All this apparatus, with more than 120 firemen, were on the firegrounds by 1:13, and within the next eight minutes the force was supplemented by one pumper each from Rue Rousseau, Rue Malar, Rue Vieux Colombier, and Rue de Sévigné, a 1,350 g.p.m. pumper, tender and salvage truck from Grenelle, and an aerial ladder from Boulevard de Port-Royal. In all, there were twelve pumpers (10 at 500 g.p.m. and 2 at 1,350 g.p.m.), two hose tenders, two first-aid tenders, four ladders, and two salvage wagons, with a complement of nearly 250 officers and men.

The second alarm, at 1:23 brought four electric-ventilator vans, used for generating current for searchlights and also for the removal of smoke from basements.

At this stage, Colonel Islert, commanding the regiment, assumed command, attended by Lieutenant-Col. Buffet and Captain Maruelle, of the technical branch of the regiment.

The third, and final, alarm, at 1:38, was answered by a pumper each from Poissy and Port-Champerret, a 1,350 g.p.m. pumper, tender and salvage truck from Chaligny and an emergency car from Poissy. Apparatus and personnel at nine stations constituted the reserve force under Lieut-Col. Barrière.

Paris theatres close during the summer season, and this "relache," or vacation, was utilized by the administration of the Opera House for the purpose of making renovations of a fire-retarding character, including the installation of a new safety curtain, on the stage, and changes in the vast scenery cage, which is 200 feet high, 175 feet wide and 85 feet deep.

Back Stage in Repair

At the back of the cage, the large stores on each of five floors had been denuded of their fittings. Their walls had been treated with a fire-retardant and their floors had been pugged, while, in the cage itself, obsolete cordage, pulley-blocks, woodwork and a lot of tinsel had been removed.

All this encumbered part of the floor of the cage. Other parts were littered with scenery, and timber—everything to make a quick-burner.

The new iron safety curtain, the installation of which Lieutenant-Col. Buffet had been so insistent, was propped up, a yard from its seating, by scaffolding. Fearful of knocking off sprinkler heads with timber or ladders they might be carrying workmen had "protected" a number of heads in various parts of the cage, while all the drenchers in the stores on the five floors had been put out of action. Surveillance, since the beginning of the renovations in July, had passed from the administration to the contractors.

Dense smoke, heavily charged with heat, confronted the crews of the first-aid tenders from Saint-Honoré and Blanche, when they groped their

way into the scenery cage. Fire could be heard roaring above them; it was actually falling in flakes. A huge counterweight, of 3,300 lbs., had fallen. It went clean through a thick, concrete floor and entered the musicians' lobby, in the first basement below the stage. Through the aperture, falling brands were starting another fire under the firemen's feet. This outbreak was attacked and quelled by the crew from the Blanche tender, but not before the elevator to all floors had been put out of service.

An officer from Rue Blanche had by this time clambered over masses of lumber on the smoke-logged staircase and had been halted on the fourth floor by intense heat and heavy smoke. He was able to see through a break in the smoke cloud that the balcony, or platform, in front of this floor was well alight. By grim perseverance, his men were able to bring a strong fire stream, from a pumper, and another stream from an inside hydrant, to bear on this balcony. This gave good results.

All this while, the Saint-Honoré crew was battling with a fierce fire in a great mass of scenery on the actual stage. Efforts were being made to reach the control valves of the drenchers above the uppermost of the three grid-irons, and, at 1:08, the first of the two valves was opened, followed two seconds later by the second valve being actuated. Next, the firemen opened the huge safety vent in the roof, through which flames soared and smoke rolled in dense volumes.

Vents Give Relief

With the relief afforded by the opening of the vent, the augmented crews were able to get strong streams directed on to each of the five floors. An attempt by members of the Opera House staff to reach a control valve on a dry-riser serving small hydrants on the upper floors failed. The attendants were driven back by heat; fire above destroyed the laterals from the dry-riser to the hydrants.

This made it necessary for firemen, heavily laden with hose and play-pipes, to toil up the obstructed staircase. In some instances, twenty-five minutes elapsed before a fire stream could be made available by these means. However, by 1:32, there were six good streams in action on the upper part of the cage. This number was increased by two.

At 2 o'clock, an order was given for tips of large play-pipes to be reduced in diameter to deal with the outbreak in the roof, access to which had been obtained by the department, breaking down a firmly bolted and barred door.

Progress by the department now became particularly rapid. In thirty minutes the fire on the stage was black out, while that in the cage was well under command. By 3:14 some of the apparatus was making up to return to stations, the "stop" signal having been given by Colonel Islert.

A good deal of cutting out work remained to be done, and it was not until 10:30 next morning that the last pumper, with a reduced crew of four men, left for its station.

Remarkable work was done by crews of salvage wagons. These officers and men are from the strength of the regiment, and are trained fire-fighters as well as salvage-workers. With considerable alacrity, these crews protected the delicate stops of the grand organ, and the electrical apparatus from the torrents of water pouring into basement and sub-basement. They also dried large areas of wooden and cement flooring, and tended to burst hose and other necessary matters.

By the splendid combination of good organization, good apparatus, a highly trained personnel, and fire engineering skill, the department, with the aid of its salvage crews, was able to limit the fire loss to about $80,000.

Protection for Scenery

The means of protecting the scenery cage against fire are worthy of recounting. The walls of the cage itself were all that could be desired; thick, well-built and certainly fire-resistant. The safety-vent, and means for actuating it, left no cause for complaint; and the new, electrically controlled, safety curtain amply demonstrated all the claims that had been made for it by its makers. That which it had replaced had been causing misgivings. It was of wood, faced with aluminum plates on the auditorium side, and with a non-combustible revetment on the stage side. A curve of about an inch that it had developed, however, had led to its condemnation.

Above the Roofs of Paris

This is a view of the roof of the opera house, above the scenery cage, after the fire was extinguished. Note that little damage was done.

Within the cage itself were three systems of water protection, sprinklers; wet-rising mains, with hydrants, hose and play-pipes; and, manually operated drenchers. There were also two manually controlled drencher systems for the stores; but, because of the work that had been in progress in these stores, the two systems had been put out of action.

Changes in Sprinklers

In fact, there had been changes in the water supplies of the drencher systems for the stores. Before the Opera House closed in July, the Avre supplied the drenchers on the first four floors, while the Seine-Montmartre undertaking supplied the water for the drenchers on the fifth floor and upwards to those above the top gridiron. There were 28 heads, each with 150 holes, working off a 6-inch main.

At the time of the fire, supplies from the first floor to the uppermost gridiron, were all from Seine-Montmartre, while those for the drenchers protecting the scenery were from the

Avre. The 6-inch main had been replaced by a 12-inch and an 8-inch, and the heads by 24 ellipsoidal roses, each with 120 holes. Whereas output under the old system was about 400 U.S. gallons a minute, under the new it has been raised to 1,600 g.p.m.

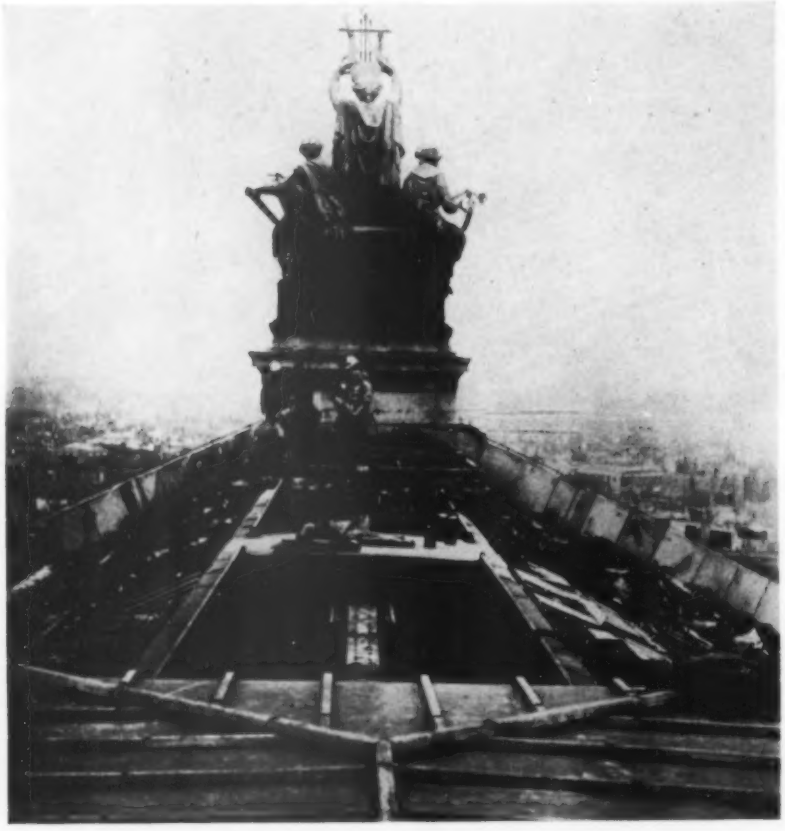
Water from these drenchers which were brought into action did not extinguish the outbreak, but merely served to retard it in the neighborhood of the gridirons, says the department. Dry rising mains to the upper floors would have materially facilitated control of the fire.

Concerning the work of the department, there is no doubt about the call having been delayed. Everything points to the fire having been burning for hours before a citizen dispatched the alarm from a box in Avenue de l'Opera.

The Sergeant in charge of the first-aid tender from Saint-Honoré, the first to arrive, states that he was met by a theatre fireman who assured him that the outbreak must be in the administrative block, at the rear of the Opera House. At this time, the crowds in the boulevards could see that the part involved was the scenery cage.

There was one night-watchman in the building. He has since stated that at about ten o'clock on the Saturday evening he noticed a faint smell of smoke somewhere above the stage. With the theatre fireman, a search was made, but as neither was able to detect whence the smell was coming, each dismissed the matter from his mind.

The attack launched by the department was impeded by locked and barred doors and gates. Many of the interior doors, however, were found to be open, and held in that position by wedges that had been evidently inserted by workmen. It was through these doors that heat and smoke spread to the staircase. The shaft for the 3,300-pound counterweight, the metal cable of which was destroyed by heat, also served as a flue.



Safety Vent Above the Scenery Cage

The safety vent, above the scenery cage, was opened by firemen. Vent is 200 feet above the ground level. (Ex-Chief Dougherty of the New York Fire Department for years advocated such vents for old-time tenement houses in New York City).

A number of the inside hydrants were found to have less than the prescribed sixty feet of hose; and the valve, in the fifth sub-basement, of the counter barrage, was shut down. This also prevented the exterior sprinkler gong giving the alarm. In spite of all these handicaps, the Fire Department confined the outbreak to the scenery cage and the stores.

Fire Due to Blow Torch

In all probability, the fire was started by a careless workman, with a blow torch, on the fourth floor. It is known that heat from blow torches was applied to the metal covering woodwork on this floor on the Saturday afternoon.

There was more fire on this floor than on any other. The whole of its balcony was smudged; the others, with the exception of the fifth, were practically intact after the fire. The fifth was badly charred by the upward sweep of flame from the fourth floor.

In addition to severing the cable holding the 3,300 lbs. counterweight, the heat bent metal girders in the first and the second gridirons. One developed a curve of 9½ inches. Asbestos cloth amply protected the cyclorama. Most of the timbers in the upper part of the scenery cage, and some of that in the roof, have to be replaced. The work of repairing fire damage will continue well on to Christmas.

The damage is mainly ascribed to lack of automatic fire detectors, and interference with sprinkler heads and drencher systems.

The Fire Department had an excellent supply of water. Col. Islert, and his staff, utilized a room on the ground floor of the Opera House, near the rear entrance, as a general headquarters.

Massachusetts Holds Local Schools

Lorton C. Walden, Superintendent of the Insurance Fire Patrol, Worcester, Mass., gave talks on salvage work at firemen's training classes in Brockton and Arlington, Mass., recently. George O. Mansfield, Chief Fire Inspector, Massachusetts Department of Public Safety, spoke on detection of arson at training classes for firemen in Brookline, Arlington, and Brockton. Ex-Chief John P. Crowe, Westboro, Mass., Assistant Fire Warden of the state, spoke on forest fires at classes in Hyannis, Brookline, Brockton, and Arlington. These classes were under the direction of M. Norcross Stratton, Division of Vocational Training, Massachusetts Department of Education.

HARRY BELKNAP.

Montreal Fire Department Gets Unusual Results

Per Capita Loss Steadily Reduced by Improvements in Fire Department Efficiency, Inspections and Reductions in Arson Cases

By A. GLENN GILBERT

WHILE Montreal citizens complain about ever increasing taxes and mounting civic deficits they may find some solace in one city service which in the past two years has saved real money—savings which in 1935 amounted to $1,900,000 over 1933 and which should make an even better showing this year. It is the Fire Department.

Last year an all time low was established when the city's per capita fire loss was announced as amounting to $1.69 in place of the 1933 total of $3.33.

To date this year fire damage stands about equal to the loss recorded for the last year, proving that the 1935 record was not a freak, and showing what really efficient fire-fighting and preventive services can accomplish. The complete motorization of the brigade now being effected at a saving of close to $200,000 to taxpayers—through the purchase of 18 light but sturdy standard built trucks instead of the special, heavier and many times more expensive machines purchased in the past—and the recent capture of two pyromaniacs, who between them added at least $300,000 to this year's loss, point to more notable success in the future.

But despite the occasional bad year the loss has been steadily controlled, till now Montreal enjoys a most favorable position in regard to fires and fire hazards. The following loss figures for the years since 1920 tell the story of the department's advance.

Year	Amount of Loss	Population	Per Capita Loss
1920	$4,961,634	801,216	$6.21
1921	3,000,586	811,467	3.69
1922	3,937,969	823,902	4.91
1923	4,355,300	836,304	5.20
1924	3,362,675	864,527	3.89
1925	3,979,070	907,500	4.38
1926	2,740,084	952,875	2.90
1927	2,599,603	989,835	2.66
1928	2,645,444	1,032,385	2.56
1929	3,362,436	1,071,057	3.39
1930	3,778,823	1,098,409	3.46
1931	4,055,008	1,127,949	4.79
1932	3,920,096	1,160,183	3.38
1933	3,863,320	1,162,520	3.33
1934	2,163,311	1,175,957	1.83
1935	2,026,745	1,198,843	1.69

1936 to October 1st the loss was estimated at $1,500,000, which is on a par with last year's figures for the same period.

Christopher Carson
Director of Montreal Fire Department

Today the city is exceptionally well protected against loss by fire. The brigade, headed by Director Carson, with 40 years of fire fighting experience behind him, is second to none on the continent. The 900 officers and men who form the fire fighting force are skilled and efficient in their work.

There are now 47 fire stations strategically situated in the city. These stations contain 117 motor driven vehicles, tuned up and ready to dart out at a second's notice. Among this equipment are two German-built Magirus sliding ladders. These built, on the backs of specially powered trucks, and run by the same engine which drives the machine, can be hoisted to a height of 100 feet and slanted to any angle in one minute.

Good-Bye to Horses

At the beginning of 1933 there were 70 horses doing duty in the Department. They furnished the motive power for 19 vehicles, the majority of which were kept in the outlying districts. This arrangement was not satisfactory because in spring months stations so situated would receive anywhere from 10 to 20 calls per day and by evening the horses would be in a state of near collapse.

Since Director Carson has assumed charge of the department his aim has been to do away with horses by completely motorizing the brigade. Precious minutes were lost in arriving at fires, and damage claims ran into large amounts.

This matter had previously been referred to those city authorities who govern the expenditures of the Fire Department. They estimated it would cost about $200,000 to convert the equipment. It needed but a glance at old purchase sheets to learn that around $10,000 was the average amount paid for motor-driven apparatus. Two hundred thousand dollars is a lot of money, especially when civic finances are in the red; so the horses remained.

Heavy Bill for Horse Maintenance

Director Carson, Chief Engineer Forget and Engineer Pare, who are responsible for all departmental equipment forthwith got together and did some figuring. It cost one dollar per day, they found, to keep a horse. That meant $365 a year for each animal. Multiplying this by 70 they established that it took $25,550 to maintain the horses for a year.

This seems like a lot of hay and oats, $25,550, but horses must eat whether they are used or not, and the feed bill was not all. Re-shoeing was necessary after every second or third run. The services of skilled

veterinarians were constantly in demand. It all took money.

Significant Figures

The mileage covered by the average fire apparatus in a year was found to total only 250. Actual running expenses came to about 10 cents per mile. Twenty-five dollars per year for a motor driven apparatus compared to the $365 for a horse, and remember, two to four horses are needed to draw one piece of equipment.

The city owns a municipal yard and garage where repairs are made to all city-owned trucks and wagons. It would be no great task the Chief and Engineers decided to change ladder wagons so they could be attached to a truck chassis instead of to a team of horses.

Still figuring, the trio decided that if motors and chassis of an inexpensive but proven type of truck were purchased the cost per unit would run about $1,000.

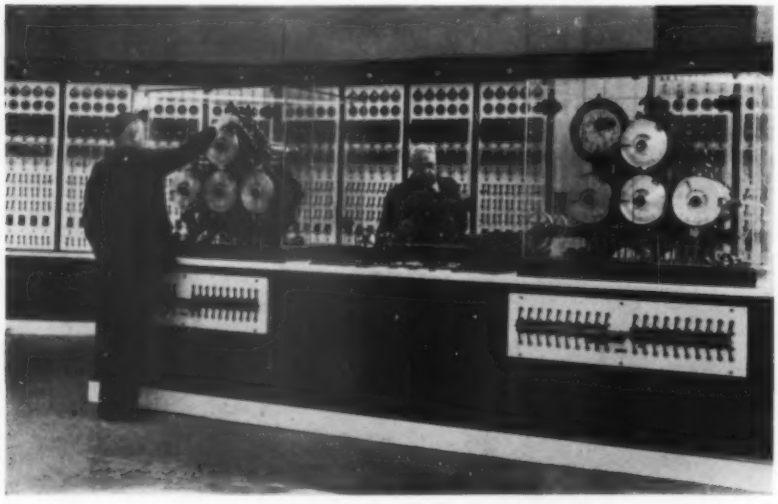
Chief Forget's Design

So the question was again broached to city authorities with the funds requested this time a fraction of the former amount. It was finally decided to allow the department $30,000 completely to motorize the brigade, just $170,000 less than the amount considered necessary but a short time before. The new motors and chassis were purchased for $1,032 each, a total expenditure of $18,586, which left $11,424 of the grant to be spent in remodeling ladder waggons so they could be attached to the truck bodies. That amount covered all expenses. A closed cab on the new trucks found great favor with the firemen. The glass in them is shatter proof.

Forty Years a Fireman

Christopher Carson, who took over the helm of the department on June 17, 1933, after Fire Chief Gauthier met his death in the Cymbeline disaster, is a man well fitted for the task. He has been in the brigade for 40 years.

He joined the department as a member of the salvage squad of the Chaboillez Square Station in 1893, a long legged youngster who had but recently emigrated from Ireland.



The Montreal Fire Alarm Department

Ten years later found him foreman of a ladder truck at No. 10 station on St. Catherine Street, near Guy. Two years later he was promoted to the rank of Captain and given charge of a station in Hochelaga. In 1904, as a result of his work in the disastrous Frothingham-Workman fire, he was made District Chief, in charge of the south-eastern division of the island. On March 4, 1924, following the appointment of the late Raoul Gauthier as Chief, he was promoted to be Deputy Chief.

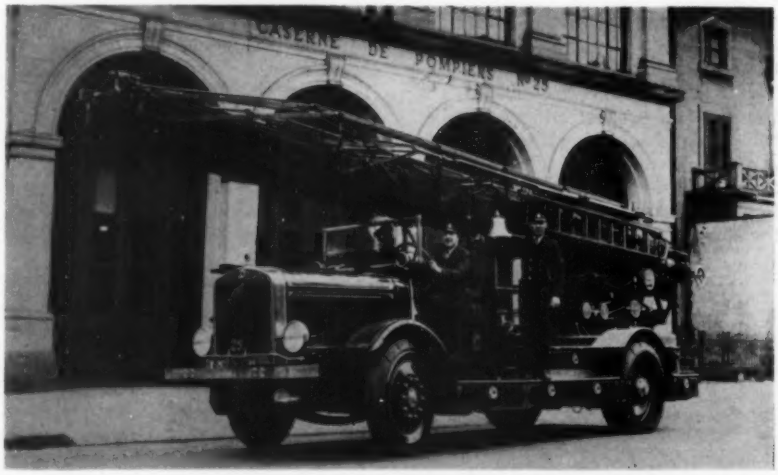
New Alarm System

The fire alarm system, with headquarters in the new building on Fletcher's Field, which is referred to as "the show room of North America" by fire engineers, plays a most important role in speeding the fire service. Signals from 1,050 street and private alarm boxes are received there and forwarded to fire stations within the space of a few split seconds. Fifty-nine circuits handle alarms from boxes; the telephone system carries 23 central lines with 56 locals for various fire stations.

John McCaffery, veteran Superintendent of the fire alarm department, is responsible for the efficiency of this service. An eye was firmly fixed on the future when equipment was purchased for the building and system; it is all so arranged that calls from 5,000 separate street boxes could be handled. This spring all street alarm boxes from Ahuntsic and Bordeaux, which before had operated on a different circuit, were wired in to the central system.

Prevention of Loss

The Salvage Squad, under the command of Captain John Taylor, oldest active member of the brigade who has been answering fire alarms for over 50 years now, does much



A Magirus Truck Which Combines Aerial Ladder and Water Tower in One Apparatus

to keep fire damage at a minimum. Members of the squad answer every alarm and annually save householders and insurance companies thousands of dollars through carrying valuables from the burning building, or spreading tarpaulins over stock and equipment which would otherwise be damaged by water and smoke. Seven salvage trucks are kept in fire stations in different parts of the city. Eight men, working in two four-men twelve-hour shifts, are assigned to each truck.

Valuable Work of Clerical Force

There are a few men in the Fire Department, who, while never seen at fires, do much to maintain and improve the efficiency of the brigade and to lessen fire hazards. Damase Olivier, the Secretary of the department, has seen few fires in his life but facts and data supplied by him make his work invaluable. Assisted by Oscar Marin, statistician, who has been connected with the department for over 20 years and is the son of a former Deputy Chief, Mr. Olivier compiles the monthly and annual reports issued by the department.

In these reports may be found a most complete record of all fires, their natures, losses caused, the number of false alarms sounded and the districts in which these occurred, a complete account of the movement of every piece of equipment used in the year. Fires are classified, losses checked and first hand information, which is essential to insurance companies and city authorities, is made available through their efforts.

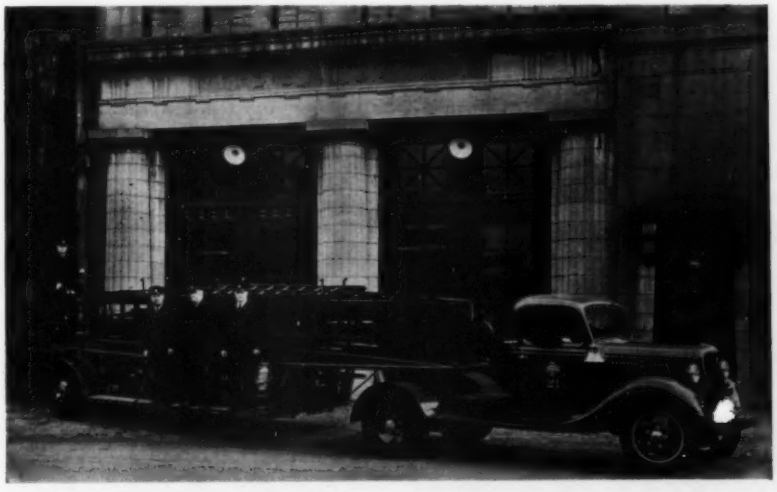
It was determined long ago that the greatest safeguard against fire is the lessening of hazards most likely to cause it. So Fire Commissions were formed and Fire Commissioners appointed to discover the causes of all fires to which city apparatus was called. The Commissioners were granted the same privileges as those bestowed upon any Judge of the Sessions, a Magistrate or a Coroner.

Horse-Drawn Hose Wagon Which Has Been Equipped with Motor Tractor

Fire Commission's Work

The present Commissioners for Montreal are David Walsh and Emile Massicotte. Every weekday afternoon they hold court in the Fire Commission Chambers on the third floor of Fire Headquarters which is situated at Craig and Chenneville streets.

A full report on every fire, which includes: the apparent cause, the damage, the owner and tenant of the property, all apparatus which responded to the alarm, is prepared by the officer in charge, immediately on returning from a call. The reports, made in duplicate, are promptly forwarded to Fire Headquarters where one is handed to Mr. Marin, the statistician, while the other is passed on to J. E. L'Esperance, Secretary of the Fire Commission.



Heavy Duty Ford Tractor Used by Montreal Fire Department to Replace Horses

After entering these reports on Fire Commission records, Mr. L'Esperance sets a date for inquiries into them and hands them on to members of the arson squad. The arson squad, composed of Sergeant Detectives Davidson, Lebrun and Crepeau, and working under the jurisdiction of the Fire Commission, make an investigation into each outbreak, prepare a record of their findings, and issue subpoenas for persons involved to appear at the inquiry in Fire Commissioners' Court.

The arson squad was first formed to investigate fires considered to be incendiary. Now their duties call for a complete investigation into every blaze. The detectives have divided the city into three sections and each is responsible for investigations in his own district. Arson, considered the most difficult of all crimes to detect, remains their greatest problem. Years of experience in studying causes of fires, skilful questioning of witnesses have brought their reward, and many an individual who thought it would be easy to collect insurance on a tumbledown building or on worn out furniture, is today ponder-

ing in prison over the apparent fact that "fires do not always pay."

Special Investigators

The Fire Insurance Underwriters Loss and Investigation Bureau, Dominion-wide in scope, have special investigators who co-operate with members of the arson squad on investigations into all suspicious fires. Eric Neuman, credited with having sent more incendiarists to prison than any other man in the country, is the Bureau's chief investigator here.

The majority of the inquiries held by the Commission do not last long. With reports furnished by the arson squad and firemen, and the questioning of witnesses, the causes are usually quickly determined. Negligence is responsible for the great majority of fires. In most cases damage has been small. Tenants are often amazed at the severity of lectures given them by the Fire Commissioners. "It was nothing," they sometimes say. "I am not even claiming from the insurance company; it is only a matter of a few dollars." They cannot understand why they are spoken to so directly as they are. Fire Commissioners, however, know the other side of the story. They know of fires started the very same way which end in loss of life or total destruction of property.

Two organizations which do much to decrease fire losses are the Fire Prevention Bureau, which is maintained by the city, and the Board of Electrical Examiners, a provincial body. The Fire Prevention Bureau, now under the charge of Chief McIsaac, have inspectors covering the city who check up on fire hazards in all buildings. Where owners or tenants are found to allow conditions to exist which might lead to fires, they are warned to make the necessary changes. The inspectors call back and if the corrections have not been made, the responsible parties are taken to court.

Years ago people resented visits from the fire prevention men and looked upon them often as intruders. Now their visits have come to be looked upon as a form of extra-insurance.

The Board of Electrical Examiners make periodical examinations of the electric wiring in and leading to all large structures. Fixtures and transformers are likewise checked.

There is another group of men, while seldom in the limelight, who do much to prevent fires. Usually blackfaced and dirty these are the chimney sweeps who trudge about over the roofs of buildings, dropping lead weights and cleaners down chimneys. They charge 10c per story per chimney and are seldom "thanked for their work." Yet they are as essential as any other unit of the fire prevention services. Their work saves perhaps thousands of dollars annually.

Every month people are admitted to hospitals and losses paid because someone for instance checks up, with the aid of a lighted match, to see just how much gasoline remains in the tank. Cold figures may not be impressive but it does not take much imagination to realize that the great majority of fires could have been prevented.

Just as the Wall Fell

This remarkable photograph shows the collapse of one of the huge walls of a large wool stores, during a fire at Sydney, Australia. Over 30,000 bales of wool were lost, and the loss was estimated at $2,00,000. Two hundred firemen fought the blaze, and eight were injured by falling debris.

Severe Brush Fires in Australia

The worst brush fires in the section of Australia between Faulconbridge and Glenbrook broke out on November 6 and made many persons homeless. Fires which burnt for days on a 12-mile front in the valleys near Kurrajong Heights brought aid from Sydney and aircraftmen from the Royal Australian Air Force Base at Richmond. Brush fires even threatened an ammunition dump on George's Heights, Mosman, where 2,000 6-inch shells are stored. The country has suffered a siege of hot, dry days.

JOSEPH GUNNER, JR.

Dr. Archer Speaks in Boston

Dr. Harry M. Archer, Honorary Deputy Chief and Medical Officer of the New York Fire Department, was the speaker at the meeting of the Box 52 Association, which was held on the evening of November 18, at the Boston Chamber of Commerce Building in Boston, Mass.

President P. Hildreth Parker turned the meeting over to Chief Selden R. Allen, Brookline, Past-President of the International Association of Fire Chiefs, who acted as master of ceremonies.

Dr. Archer took as his subject: "First Aid—What Firemen and Members of Box 52 Should Know." By means of charts, instruments, and motion pictures he showed what to do in various emergencies encountered at fires. He told of dangerous gases caused by burning substances and gave the antidotes for each. He related many interesting incidents connected with his experiences in the New York Fire Department.

Paxton Mendelssohn, of the Box 12 Associates, Detroit, Mich., brought the greetings of his organization and spoke briefly.

Chief Henry A. Fox, of the Boston Fire Department, who on the day of the meeting retired on pension, was given a real ovation as he entered the room. He related incidents of his long term of service in Boston and told of his early days in the fire service.

HARRY BELKNAP.

I.A.F.C. DIRECTORS MEET AND ARRANGE CONVENTION DETAILS

Annual Meeting of the Board of Directors Held at New York, December 7-9, and Date Set for Oklahoma City (Okla.) Convention, October 19-22

AT a meeting of the Board of Directors of the International Association of Fire Chiefs held at the Hotel Edison, New York City, December 7 to 9, details of the 1937 Annual Convention were arranged, and a program selected.

The Headquarters at Oklahoma City will be the Biltmore Hotel, and the rates will be: single room $2.50 to $3; double room $4.50 to $5.

The dates selected for the Annual Convention were October 19 to 22 inclusive.

Both exhibits and business meetings will be held in the new municipal auditorium, wherein 37,000 square feet of space will be available for exhibits, and any of several rooms, for the meeting purposes. This auditorium is five blocks from the Headquarters Hotel.

To facilitate registration, the Secretary's office will be opened the day before the Convention convenes. The Southwestern Association will meet jointly with the International this year and will share the same program.

Those who were in attendance at the meeting included the following:

Chief Robert A. Bogan, President, Baton Rouge, La.; Chief Daniel B. Tierney, 1st Vice-President, Arlington, Mass.; Chief Roy B. Mottesheard, 2nd Vice-President, Dearborn, Mich.; Ex-Chief James J. Mulcahey, Secretary-Treasurer, Yonkers, N. Y.; Ex-Chief Jay W. Stevens, Executive Secretary, San Francisco, Cal.; Chief Charles J. Brennan, Director, San Francisco, Cal.; Chief J. Ray Roe, Director, Abilene, Tex.; Chief W. Q. Dowling, Director, Jacksonville, Fla.; Chief James T. O'Donnell, Director, St. Louis, Mo.; Chief Peter Steinkellner, Director, Milwaukee, Wis.; Chief George B. Goff, Host, 1937 Convention, Oklahoma City, Okla.; Chief Arthur Chambers, Committeeman, Yonkers, N. Y.; Chief Thomas F. Burns, Committeeman, Bridgeport, Conn.; Chief John J. Towey, Committeeman, Newark, N. J.; Chief John J. McElligott, Committeeman, New York City; Chief Ray Tiller, Chairman, Exhibits, 1937, Waterloo, Ia.; Chief Selden R. Allen, Committeeman, Brookline, Mass.; James Keegan, Salvage Corps, Newark, N. J.; Assistant Chief Ross, Oklahoma City, Okla.; Assistant Chief and Drillmaster Ray Tillman, Portland, Ore.; W. E. Mallalieu and George W. Booth, National Board of Fire Underwriters, New York City; Arthur Sullivan, American-LaFrance-Foamite Corporation, Elmira, N. Y.; Joseph H. Green, Eureka Fire Hose Division, U. S. Rubber Company, New York City; George Morley, Gamewell Company, Newton, Mass.; I. H. Case, Director of Publicity, I.A.F.C., New York City, and Fred Shepperd, Headquarters Manager, I.A.F.C., New York City.

Fire Protection for New Bridge

With the opening of the San Francisco-Oakland Bay bridge, a system of fire protection service has been started for the eight and one-half miles of bridge. The bridge is a double deck structure with six lanes for passenger cars, two interurban railway tracks and three lanes for motor trucks and buses.

To provide fire protection for this heavy motor car traffic, there is a complete fire alarm system-fire station, chemical truck, and two tow-cars. Each tow car is equipped with complete portable fire-fighting equipment and towing equipment for use in the event that a wrecked car catches fire. If a car or truck on the eight and one qarter mile bridge catches fire and there is no accident, a fire alarm only, will be turned in by the policeman; if there is a fire and an accident, both fire and tow-car alarms will be turned in.

The fire alarm system includes thirty-two fire alarm and two car calling stations throughout the length of the bridge. In each of these stations there is a telephone jack which permits maintainance men to be in communication with the fire alarm central station on Yerba Buena Island in the center of the Bay while repairing and testing the fire alarm equipment. The thirty-two boxes, which are similar to fire alarm boxes, are installed at intervals across the bridge. The boxes are to be used by motorists whose cars may catch fire or stall. The motorist will break the glass in the alarm box, turn the key inside and a chemical truck or tow car will come to the rescue.

With the opening of the bridge to automobile traffic on November 12, the public was able to observe the operation of what is perhaps the most elaborate and extensive bridge telephone system and fire alarm system of its type in the world. Electrical facilities costing $550,000, includes a telephone system with 22-police telephones, 6 substation phones, 58 plug-in stations and 11 open transmitters, and two 8¼-mile 2¾-inch diameter cable in which there are in the center of the cable, 7 No. 8 and 36 No. 16 gauge wires, the later twisted together to form twelve sets of triplex wires for telephone communication. The cable also includes 35 single No. 16 gauge wires, 41 16-gauge single conductors, and 47 No. 16 gauge single conductors, which are used for various purposes.

The 22 police telephones are arranged on five circuits. This is done to sectionalize the bridge.

Three wheel motorcycles are being contemplated for use by the bridge patrol, so that gasoline and individual fire equipment may be carried conveniet-ly by each officer when necessary.

CHARLES W. GEIGER.

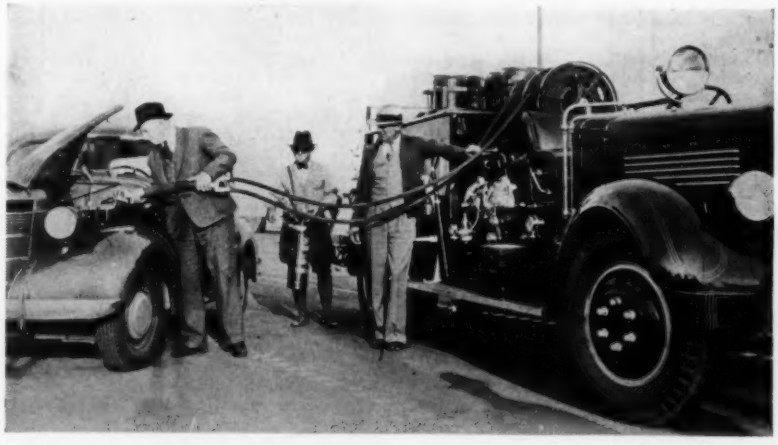
Detroit Orders More Apparatus

Detroit, Mich., has placed an order with the Seagrave Corporation for four sedan type pumping engines, and two hydraulically operated all steel aerial ladder trucks. The trucks will have cabs with seating space for seven men. Early this year Detroit ordered four 1,000-gallon sedan type pumpers, and are satisfied with their ability to withstand the dangers of collision.

Miner Talks to Rotarians

Alfred N. Miner, Vice-President of the Massachusetts Safety Council, spoke on "Fire Prevention and Safeguarding the Home from Fire" at a recent luncheon meeting of the Newton Rotary Club at the Brae Burn Country Club. Chief John W. O'Hearn, of Watertown, Mass., Secretary of the New England Association of Fire Chiefs, was a guest at the meeting.

HARRY BELKNAP.



How a Fire on the Bridge Would be Fought

Al Miller, Engineer, American-LaFrance and Foamite Industries Co., and right L. T. Harbey, maintenance foreman, automotive equipment for the Bay bridge, demonstrate how a fire will be fought. Note the two lines for a foam solution.

Gases, Chemicals and Hazardous Materials

A Pungent Rubber "Bonfire"

Thousands of second-hand automobile tires going up in smoke in an old tire yard. Firemen with smarting eyes and smoke filled lungs fought this fire for hours.

Part XIII

In this thirteenth and final installment is concluded the discussion of chemicals and hazardous materials more commonly encountered in fire fighting. Methods of shipping and handling and their action under exposure to fire are given for most of the materials.

Oils

Oil is a liquid of vegetable, animal or mineral origin, lighter than, but easily mixable with water, but soluble in sulphuric ether.

There are three types of oils encountered: vegetable oils, animal oils and mineral oils.

The fundamental difference between vegetable and animal oils and the petroleum and coal tar oils is found in the fact that the vegetable and animal oils consist primarily of carbon, hydrogen and oxygen, while the petroleum (mineral) and coal tar oils do not contain oxygen, but are primarily compounds of carbon and hydrogen.

As a general rule, none of the vegetable and animal commercial oils are volatile or even inflammable; in fact, the normal flash point of these oils centers around 500° F., but nearly all can cause spontaneous ignition. On the other hand, a number of petroleum and coal tar oils are very volatile and the majority are easily ignited, but none will induce spontaneous ignition.

With vegetable oils there is usually danger of spontaneous ignition, due to heating caused by fermentation or other chemical processes. This same danger is present in a minor degree with animal oils.

The most striking difference between vegetable and animal oils and mineral oil manufacture is this: With mineral oils we start with oil and have no bulky hazardous by-products, but the production of vegetable and animal oil commences with seed, copra, nuts, offal, etc., and after the oil is expelled or extracted we still have to dispose of linters, hulls, presscake, tankage, etc. The alarming thing about all of these by-products is the fact that they heat and ignite spontaneously.

Among vegetable oils and fats commonly encountered are: linseed oil, perilla oil, tung oil, soy bean oil, cotton seed oil, corn oil, rape oil, mustard oil, olive oil, peanut oil, castor oil, cocoanut oil, palm oil, and palm kernel oil. There are a great number of other vegetable oils of lesser note.

Animal Oils: Among the animal oils and fats commonly found may be listed the following: tallow, oleo oil, lard oil, bone oil, neatsfoot oil, red oil and fish oils.

As animal and vegetable oils do not constitute a severe hazard, either from the standpoint of life or fighting fire, they will not be treated in detail.

Mineral Oils: On the other hand, as mineral oils of petroleum base represent sever hazards, they will be covered with some detail.

Cymogene—principally butane, gravity about 100° Baumé (Bé). An anaesthetic and refrigerant. Boiling point 32° F. It is a gas at ordinary temperatures.

Rhigolene—principally petane—gravity about 95° Bé. Boiling point about 64° F.

Canadol—Light petroleum ether, about 76° Bé gravity.

Benzine—principally heptane, boiling point, 113° to 140° F., gravity about 85° Bé. Not to be confused with the aromatic hydrocarbon benzene, or benzol.

Gasoline—Gravity from 60° Bé to 74° Bé. Gravity is not dependable in determining quality of gasoline, end point or final boiling point being far more reliable. This should never exceed 350° F. Flash test—1° F.

Gasoline throws off vapors at ordinary room temperatures, the vapors traveling with great rapidity. The hydrocarbons pentane to octane have a vapor pressure varying from 55 to 0.7. The specific gravity of these gases varies from 2.496 to 3.592; therefore, the gases being much heavier than air, will not rise to a greater elevation than three feet if not confined. Explosive air and gas mixtures may vary from 1.5 to 6 per cent by volume, of gas.

Naphtha: A term now loosely applied to all lighter products distilling below 260° F.; it is essentially the heavier fraction obtained from redistillation of crude benzine. Boiling point from 203° F. to 248° F., and gravity from 56° Bé. to 49° Bé.

Kerosene: (Also known as water-white, burning oil, lamp oil or illuminating oil) has a boiling point of 450° F.; flash test, 110° F.; 150° F. fire test and 47° Bé. gravity. Sometimes manufactured with gravity lighter and 110° F. fire test, and for railroad purposes with heavier gravity and 300° F. fire test.

Gas oil: Consists principally of olefines, produced in large quantities by Kansas refiners, gravity about 34° Bé. to 36° Bé. Used in manufacture of so-called gas and as fuel for Diesel engines.

Neutral oils: Consisting of oils carrying paraffin obtained from distillation of paraffin base petroleum. Gravity 32° Bé. to 36° Bé. and flash point 290° F. to 350° F. Also known as wax distillate. After removal of wax, the pressed distillate is fractioned, the lighter fractions being non-viscous neutral oil, the heavier fractions viscous neutral oils, and from all of which are produced various grades of lubricating oils. Spindle oils come within this class, although they differ from paraffin oils in that the flash test and fire test is higher at a given Bé. gravity. Automobile lubricating oils usually have a flash test of from 390° F. to 450° F.

Cylinder oil: Requiring proper viscosity at steam cylinder temperature, will have a flash test of 540° F. to 630° F., equivalent to fire test of 600° F. to 710° F.

Fuel oil: Produced in many different gravities and flash points. Its viscosity sometimes makes pre-heating necessary. Flashpoints vary from 125° F. to 150° F.

Paraffin wax: Manufactured in varying grades, melting point ranging from 110° F. to 130° F., gravity 27° Bé.

Road oil: A rather broad designation of any residuum of asphaltic base, grading from liquid road binder to solid asphalt paving. Gravity varies from 34° Bé. to 16° Bé, with flash point varying from 250° F. to 410° F. and fire test ranging from 300° F. to 540° F.

Coke: Final residuum of distillation to dryness. Extensively used in the manufacture of carbons for electrical devices.

Vaseline: Sometimes termed petroleum, consisting of hydrocarbons of the paraffin series and some olefines. Gravity about 35° Bé. at 100° F. Produced from residue remaining in stills after distillation of lighter reactions, including wax distillate, the residue being reduced, filtered and steamed rod wax added. Sometimes crude oil is first chilled, forming a heavier sediment, which is firestilled and reduced to a melting point of 100° F. to 120° F., and filtered.

Coal tar oils: Coal tar is derived from by-products coke ovens and from gas works. It is a thick, very dark brown, oily liquid with a flash point of about 60° F. below zero. Its chemical makeup is exceedingly complex and but poorly understood.

The fire hazard and flash hazard of coal tar should be classed with crude petroleum. It flashes readily and burns

freely with the emission of tremendous amounts of pitch black smoke.

Upon distilling the tar, there is obtained, according to its quality, 2 to 8 per cent of light oil, 8 to 10 per cent of middle or carbolic oil, 8 to 10 per cent of heavy or creosote oil, 16 to 20 per cent of anthracene oil, and the residue, somewhat over 55 per cent, is pitch and coke. From light oil is distilled the crude benzol, a mixture of benzol, toluol, zylol, and solvent naphtha, an excellent motor fuel.

Benzol—is used as a fuel for automobiles, but in winter it has to be mixed with 15% to 40% of gasoline, as otherwise it freezes at 32° F.

Benzol flashes at 16° below zero Fahr. In other words, it still flashes when frozen solid.

Toluol—which flashes at 46° F., is used as a solvent, but is primarily used in synthetic dye industry and for the manufacture of military explosives.

Xylol—is used in the synthetic dye and for the making of explosives. Its flash point is 80° F.

Solvent naptha—as its name indicates, is an excellent solvent and is used for that reason quite extensively in the paint, varnish and enamel industries. Its flash point is 60° F.

Coal-tar oil summary: Summarizing, we may say that all the coal tar oils burn freely, and that light oil, benzol, toluol, xylol, pyridine and solvent naphtha are practically of fire and explosion hazard equal to gasoline.

None of the coal tar oils will, however, induce spontaneous combustion.

Carbon bisulphide (carbon disulphide): Carbon-bisulphide is very poisonous. Commercial or impure carbon-bisulphide readily attacks iron, rendering the apparatus unsafe. Carbon-bisulphide is more to be feared by fire departments than any other liquid in common use. It evaporates more readily than gasoline. The vapor is much heavier than air, and travels along the ground much faster than the vapor of gasoline. The vapor is much harder to dislodge or disseminate than that of gasoline, and, mixed with air, it has the widest known range of explosibility, exceeding even that of acetylene gas. Carbon-bisulphide, being heavier than water, can be handled under water; for instance, this is done regularly in rubber extracting.

Carbon-bisulphide boils at 117 degree Fahr. and ignites spontaneously at 212 degrees Fahr. In other words, the heat of a steam pipe is sufficient to ignite it. The normal flash point is 22 degree Fahr.

Carbon-bisulphide vapor exhausted from a steam-heated apparatus ignites spontaneously when striking the atmosphere.

Sulphuric ether: Sulphuric ether is only used as a solvent in limited quantities in extracting pharmaceutical matter. It evaporates with exceeding rapidity, forms explosive mixtures with air, and is, as everyone knows, not to be inhaled with impunity. Its flash point is 49 degree Fahr., and it breaks into flame spontaneously at 356 degree Fahr. However, as it is very expensive and used only when absolutely unavoidable, we shall generally find that very little is allowed to escape into the air, and that the supervision is usually of a high standard.

Chloroform: Chloroform evaporates very rapidly and cannot be inhaled without the most serious consequences. It forms explosive mixtures with air. It is decomposed by light, giving off the extremely poisonous gas phosgene. Like ether, it is only used on a limited scale, generally under high-grade technical conditions.

SYSTEMATIC PLANS FOR ASSISTANCE BETWEEN FIRE DEPARTMENTS

How Departments of a County or Section Can Assist One Another by Means of Systematic and Pre-arranged Plans

By Chief John J. Brennan,
Fire Department, Pelham Manor, N. Y.

Chief John J. Brennan

THE Chief of a volunteer department is anxious to aid a neighbor when in distress, for it is a service of this kind which naturally fosters a friendly spirit between volunteer and paid departments and acts to eliminate any petty jealousies that might exist between these units.

It must be admitted that no municipality, whether large or small, can maintain sufficient apparatus to cope with a large, rapidly spreading fire, which might also develop into a serious conflagration. Fact records of large fires will reveal that were it not for the timely aid rendered to many communities, untold destruction of property might have resulted.

When a call for aid is received a very serious problem immediately arises. In many localities it is necessary that the Chief obtain permission from the Mayor. Fire Commissioner, or some other official before he can send apparatus outside his own district. If he feels that there might be a delay in obtaining such permission, and responds with the apparatus, and nothing happens, well and good, but if something serious occurs, he would be placed in a very compromising position.

Risk of Accidents to Apparatus and Men

Let us suppose for instance that while responding to a call for aid, the apparatus is wrecked, or that any one of several things happens that might place the apparatus out of service. We all know that repairs and parts, wear and tear on tires, the deterioration of the entire mechanism, not to mention the operation of the pump for extended periods, gasoline, oil, etc., combine to involve large expenditures. All these items make your operating expenses much greater, and as a rule the budgets of volunteer departments, to say the least, are cut to a minimum.

Then there is serious danger of injury to fire department personnel from accidents, whether going to, working at, or returning from alarms of fire. I do not wish to be misunderstood with regard to this matter, as it is not my intention to discourage one department from giving aid to another, when conflagration threatens. This is a problem in which any community may find itself involved at any time, and one that cannot effectively be overcome.

Chief Should Have Full Authority to Act

As fire equipment is purchased and maintained by the taxpayers of a municipality, it is only just that they should at all times have the fullest measure of protection that such equipment affords. Therefore, proper laws and ordinances should be passed by those in authority, giving the Chief full permission to act in any emergency, so that when a call for aid is received there will be no misunderstanding.

The Chief of a Fire Department should not respond to a summons for aid unless such call is received directly from the Chief or other officer in charge at the scene of the fire. Such call should be identified by the Chief requesting aid, giving the name and a secret code word, known only to the Chief officers and assistants of each department.

Message Should be Identified by Code Word

There have been cases where the apparatus responding to such calls was involved in accidents which resulted in members being seriously injured and killed. Upon investigation it was found that no call for aid was requested by the Chief in charge at the fire. If the code word or some identifying signal is used, it will eliminate confusion and the unnecessary response of apparatus.

Even though sufficient apparatus remains in service, within the city, town

(*Continued on page* 582)

PROMOTIONAL STUDY COURSE

Herein is presented a series of definitions, questions and answers designed to aid fire department officers in preparing themselvs for promotional examinations. In this department, which appears monthly will be included questions typical of examinations held throughout the country.

Definitions

Shed: A roofed structure, open on one or more sides, which does not exceed 15 feet in height nor more than 500 feet in area.

Skeleton Construction: A form of building construction wherein all external and internal loads and stresses are transmitted to the foundations by a rigidly connected framework of metal or reinforced concrete. The enclosing walls are supported by girders at each story.

Story: That part of any building comprised between any floor and the floor or roof next above.

Fire Window: A window frame, sash and glazing which will successfully resist a fire for one hour in accordance with Underwriter's test specifications.

Questions

(To be answered in next issue)

1. As Battalion Chief you answer a first alarm in your district about 3 o'clock Saturday p. m. and find a bad fire on the third floor rear center of a six story modern department store. The building is located about the middle of the block, on side alleys, but one in the rear. There are two passenger elevators on one side of the store and a freight elevator in the rear.
   As ranking officer in charge of the fire, indicate what steps you would take to save life and property and extinguish the fire.
2. (1) Give a rule for calculating the necessary nozzle pressure to produce an effective stream when distance of the stream to travel is known or can be estimated.
   (2) What would be the required nozzle pressure for a horizontal stream, range 100 ft.?

False and True Questions

(Is each question false or true? Answers in next issue)

3. T F—Electrical transformers containing oil for insulating and cooling purposes have caused serious fires in power houses.
4. T F—Oil switches have proved to be a very definite fire cause.
5. T F—Inspection of buildings by Fire Department officers is of no importance to firemen in the ranks.
6. T F—Ventilation can sometimes be provided by unsealing the covering over elevator shafts.
7. T F—Firemen arriving at an oil fire where employees are using firefoam or steam should use their fire streams for the one purpose only and that purpose is to cool down the sides of the tank involved or the surrounding tanks or property.
8. T F—It is not necessary for fire inspectors to look around the outside and rear of buildings.
9. T F—Carbon-dioxide is a non-supporter of combustion.
10. T F—Carbon tetrachloride is especially adapted for use in connection with electrical fires on account of its being a good conductor of electricity.
11. T F—The moisture in fire foam absorbs some of the heat of the fire.
12. T F—Fire foam excludes oxygen from the fire long enough to permit the burning substance to cool of its own accord to a point below its burning point.
13. T F—Plain water, with a little force back of it, is as effective in fighting grass fires as are soda and acid chemicals.
14. T F—Electricity should always be cut off in buildings well involved with fire as soon as possible.
15. T F—Firemen making inspections in their districts should always suggest the correction or removal of hazards discovered.
16. T F—Useful information can sometimes be secured by going to the roof of a building when making district inspections.
17. T F—It is necessary for nozzles to be kept at certain distances from live electrical lines, which distances are dependent upon the voltage on the wires.
18. T F—In order to prosecute for the crime of arson it is essential it be proven that the fire was by design.
19. T F—One of the first duties of the Fire Department on arrival at a fire is to locate the fire in the building.
20. T F—Salt water streams, for safety, must be directed at too great distances upon high voltage electrical lines to be of any practical use.
21. T F—Open gas outlets never have a bearing on incendiary fires.

Completion Statements

22. A device which will afford a fireman protection against carbon monoxide is called a .....
23. Rags saturated with ..... oils are less subject to spontaneous ignition than are rags saturated with .... oils.
24. Motion picture film which is not dangerous from a fire standpoint is called ..... film.
25. Carbon dioxide gas, if inhaled, is .....
26. A ..... controlling nozzle is usually used for inside work at spreading fires in apartment houses.

Answers to Questions in Previous Issue

1. Give proper cleaning, if such is necessary; inspect gasoline supply; inspect supply of water in radiator; check up oil level in motor; look for water or gasoline leaks; tighten all bolts which may have worked loose; check up breaks and steering gear if there has been any indication of improper performance.

2. (a) Put strainer on end of suction hose; make sure rubber gaskets are properly inserted in the couplings and that the latter are tight throughout the entire length of the suction from pump to hydrant or source of draft. See that suction end is covered by sufficient water to prevent the formation of whirlpool while pumping, and also that it does not rest on muddy bottom of stream or other source of supply. See that intake cap on opposite side of pump from that of the suction connection is fitted with proper gasket and is screwed on tight. Complete the hose layout on the discharge side of the pumper, make sure that all connections are tight. Close all discharge gates to which hose is not attached and open those which are connected with line. The pump is now ready for operation.

(b) A pump drafts water by creating a partial vacuum in the suction hose. When this is accomplished, the atmospheric pressure on the water outside of the suction hose forces the water up into the suction hose. The height to which water can be lifted by suction depends upon how perfect a vacuum can be created and maintained in the suction hose by the pump.

3. The relief valve on a fire pump acts in very much the same manner as the safety valve on a steam engine, its purpose being to maintain any desired uniform pressure of water discharged into the hose line. Its action is automatic. Should the pump suddenly start delivering water at a greater pressure than arranged for by the setting of the relief valve, as is the case when hose lines are shut off at the nozzle, the relief valve automatically opens a by-pass through which the excess volume of water is passed back to the suction chamber of the pump.

The relief valve is usually located in the discharge chamber of the pump so that it will be operated by pressure fluctuations on discharge outlets on either side of the machine. One manufacturer places separate relief valves on each hose outlet. This, however, is not common practice.

In one type of relief valve a sudden increase in pressure opens a small pilot valve, which is held closed by an adjustable spring. As this pilot valve opens, water under pressure is led to a small cylinder in which a piston moves. This water under pressure forces the piston downward, and the rod attached to this piston opens a water valve which permits water to flow directly from the discharge chamber of the pump back to the suction chamber. By this means, when pressure is suddenly increased, the water finds its way back to the suction side and thus prevents stalling of the motor, or the maintaining of excessive pressure.

4. True (if dust is combustible); 5. True; 6. False; 7. False; 8. True; 9. True; 10. True; 11. True; 12. True; 13. False; 14. False; 15. False; 16. True; 17. False; 18. True; 19. False; 20. True; 21. False.

22. . . . calcium carbide . . . carbon bisulphide . . . oil tanks.

23. . . . head.

24. . . . that it does not freeze up.

25. . . . lee, or leeward.

26. . . . windward.

(To be continued)

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

EXPERIENCE WITH FIRES CAUSED BY OIL BURNERS IN HOMES

MAN, in his hunt for more hours to enjoy leisure, and in a mad desire to become free from the back-breaking job of toting ashes, devised the oil burner.

The new system of heating replaced the gaping coal furnace with its constant hunger for coal, and its everlasting flow of ashes. In its place there came the burner with its oil storage tank, motor, ignition system and other parts which could cause trouble if not properly serviced.

The oil burner has brought a new fire hazard into the home. As a means of cutting down on such possible fires, many Fire Departments supervise the installation of oil heating systems, and also continue the inspections at regular intervals.

In the box on this page is the problem in full that is discussed in this issue. Due to the many Chiefs who participated in the discussion, it has been necessary to conclude this round table problem in the next issue.

If you have a problem that you would like to see discussed, write to the "Round Table Editor," FIRE ENGINEERING, 24 West 40th Street, New York, N. Y.

Discussion of the Question

Wm. J. Sudeith, Chief, St. Paul, Minn.: Fires caused by oil burners have been very few. I might say that we now have approximately 10,300 oil burner installations in this city, and would further advise that we have a city ordinance regulating the installation of oil burning equipment.

It is my opinion that oil burners are not a serious fire hazard. On the contrary, they have actually helped to reduce the number of fires in the home, due to the elimination of several fire hazards usually associated with hand-firing heating equipment, such as: hot ashes, the kindling of fires, and the necessary accumulation of firewood, etc., in the basement.

The number of fires from oil burners has been very few—98 oil burner fires in eight years, with a total loss of approximately $45,144 for the same period and a large percentage of this loss was due to smoke rather than fire. So to name any particular cause is rather difficult.

Our local ordinance requires that for each oil burner installation, a permit to perform such work must first be secured at this office, and an inspection is made of each installation.

H. C. Root, Chief, Springfield, Mass.: I believe our experience in this respect has been that of the average Fire Chief. While the range type of burner has introduced a new hazard in the home, I believe fires from range burners are not as numerous as would be expected, considering the number of installations in our city. Such fires are bound to occur, but the idea is to keep them at a minimum. To accomplish this end we inspect all installations before a permit is granted, taking care to notice that the regulations have been complied with in reference to the installation and storage of oil.

While range burners are a distinct hazard of a potential nature, we have not found them to be a serious hazard.

Flooding of the burner has been the most frequent cause of such fires in our city. The loose oil is ignited by the flames from the burner itself or heat radiated by a hot stove, which vaporizes the fuel oil. This flooding may be caused by improper installations and faulty adjustments, manipulations of the valve while the burner is in operation; oil reservoir being placed too high in relation to the burner base and accumulation of excessive soot or carbon deposits on the burner base and vaporizing chamber. Loose oil is the most common cause of range burner fires and the careless handling of fuel oil in the filling process is next.

All range and power burners are inspected before a permit is granted.

Charles H. Treman, Deputy Chief, Milwaukee, Wis.: Thirty-five fires were caused by oil burners, comprising 1.3 per cent of total building fires. Property loss during the year totaled $729,-.88, or an average of $20.85 per fire, compared with the average loss per fire due to all causes of $231.22. Oil burner fire losses represent 1/10 of 1 per cent of our total losses. We have not found oil burners to be a serious hazard.

As a general rule, we find that oil burner fires are the result of improper or lack of care of the burner.

Our Department inspectors check up on oil burning installations in business establishments, including stores, offices, apartment houses, rooming houses, etc., but have no authority to enter private residences. Such latter installations come under the jurisdiction of the City Building Inspector, who enforces all building construction ordinances, including fire regulations.

H. R. Chase, Chief, Miami, Fla.: Our experience with fires originating from oil burners used in dwellings for heating purposes has been nil, due to the fact that we do not have the cold weather that requires such installations. I do not know of a residence in the city of Miami that is using an oil burner for heating purposes. However, in apartment houses they are using them extensively for heating water and we have had some trouble with them. Trouble has been more or less due to improper installations, however. Prior to about a year ago, these installations were more or less haphazard, but in recent months we have installed a system of checking and inspecting that is rather rigid. However, the requirements are for the benefit of the owners.

I would say that they are a serious hazard, unless properly installed and regularly maintained and kept in first class condition.

On the first installations, gravity systems were permitted without adequate automatic stops and without the proper maintenance, due to ignorance, with the result naturally, that burners would get out of order, fire would be extinguished for one cause or another, oil would continue to run into the boiler and no doubt, due to an accumulation of hot gases coming in contact with the extreme heat caused an explosion. In several instances safeguards were not provided and the oil would gather on the floor of the boiler room, so that we had fires that would cover quite an area.

In extinguishing such fires we have found that, while foam is an ideal ex-

HERE IS THE PROBLEM

What has been your experience with fire originating from oil burners such as are used in dwellings for heating purposes?

Have you found them to be a serious hazard?

If fires have been caused by oil burners, where did they start and from what immediate cause?

Do your inspectors check up on oil burning installations when making building inspections?

tinguisher, we can also do it with streams of high pressure used with rapidity over the area involved very successfully.

Our inspectors check up on oil burner installations, not only during the installation, but at infrequent intervals afterwards. In other words, we might make an inspection of an oil burner two or three times in one week and then it might be a month or two before another inspection was made. The idea of this method of inspection is to see that continual precaution is being used and that the engineers or those in charge are not cognizant of the date of inspection.

Our biggest trouble with oil burners has been the neglect of the owners to keep the stacks, flues, etc., properly cleaned and this neglect has been the cause of quite a number of runs for the department. An accumulation of soot catches fire and the stack burns out. A lot of trouble is also caused by improper combustion, which, of course, is improper adjustment of the burner, thereby creating a smoke annoyance to the neighbors. We have found that it is very essential that the inspectors learn the proper method of operating oil burners, so that they can instruct the operators as to the best method of using this equipment.

Summing the whole question up, it is my belief that the hazard from oil burners can be minimized, if the installation is properly made and properly maintained.

Howard Travers, Chief, Baltimore, Md.: Our experience with fires originating from oil burners as used in dwellings, is that, when the equipment is properly installed and maintained, it is but fairly safe. When fires involving this equipment occur, they are exceedingly hot, fast and smoky. They have a higher fire average than other heating equipment.

Oil burners are a serious fire hazard, due to the intensity of the fire and the flammable nature of the fuel they add to the fire.

Fires from oil burning equipment have been caused by improperly operated and maintained equipment; by using the wrong type of fuel oil and attempting to save on oil consumption, when starting fires, feeding oil before applying flame. The extreme heat that some types of burners send into the chimney has caused many destructive fires.

Our inspectors check up on oil burning equipment during regular inspections, but do not inspect private dwellings.

John J. Towey, Chief, Newark, N. J.: In most of the oil burner fires that we have had in the last few years, we find that the main contributing causes are lack of proper periodic servicing of the systems together with the use of some cheap or inferior grades of fuel oils, which have a tendency to clog the orifices and electrodes in the burner units.

Lack of sufficient oxygen contents of the room where the burner has been installed, or defective flue arrangement in certain instances, will cause the burner to go out, and when the flame has been extinguished the oil is still flowing into the burner, flooding it and forming pools in and about the equipment in general. As soon as the oxygen contents fill up the room again and the burners again start to function, the result is that this accumulation of oil becomes ignited and bursts into flame. Many fires are caused by leaks in feed lines and connections, which may have resulted from careless handling or neglect in cleaning.

A fully qualified inspector from the Bureau of Combustibles and Fire Risks, with both oil burning and plumbing experience, inspects all oil burning systems in our city after they have been installed, before a permit is granted as to their operation.

All oil burner flues should be cleaned by the vacuum method at least once a year and preferably twice a year.

HERE IS THE PROBLEM FOR THE NEXT ISSUE

Due to the large number who contributed to this discussion, it has been necessary to withhold some of the comments and to conclude the discussion in the next issue.

C. A. Delaney, Chief, Lakewood, Ohio: Our experience has been that we have had no fires originating from oil burners used in dwellings for heating purposes.

We have found that the use of oil for fuel, together with approved burners and equipment, instead of presenting a fire hazard, has proven to be the outstanding movement toward the elimination of fires in dwellings, which may be the result of overheated furnaces and the presence of hot ashes in combustible containers.

All oil burning equipment installed in Lakewood is installed in accordance with our city ordinance governing such equipment and installation. The Chief of the Fire Department inspects all new installations and a regular periodical inspection and check is maintained.

L. M. Funk, Fire Marshal, Dallas, Tex.: We do not have a large number of oil burners installed in dwellings, but do have some in large apartments. The most of the trouble we have with them is caused by the automatic features failing to function, so that the oil floods the basement.

When properly installed they are not a serious hazard.

We have had a number of fires from oil burners used in commercial establishments, when not installed in accordance with the requirements. The fires are caused from the use of gravity flow, with no control system used.

We inspect commercial buildings, hotels and apartments. In dwellings, however, we only inspect upon a complaint.

The inspection and permit granting for oil burners is handled by the Building Inspection in Dallas and is a separate department.

V. E. Pierret, Batt. Chief, Los Angeles, Cal.: There have been very few installations of oil burners for heating purposes in dwellings in the city of Los Angeles, therefore it would be difficult to intelligently answer the first question.

The majority of oil burner installations in this city are in apartment houses, hotels, rooming houses and office buildings, where fires are caused through old type installations which caused overflows; and through failure to have capable attendants to handle the equipment; and also where the lighting of fires in the mornings were not properly handled. When gravity systems were used in this city, this department experienced a considerable number of fires caused by gravity feed.

Our Inspectors not only check on all oil burning installations when making building inspections, but our Board of Fire Commissioners has the sole jurisdiction of approving oil burners before being used.

Joseph Kohler, Deputy Chief, Irvington, N. J.: All fires are very bad carbon fires when an oil burner or fuel oil is involved. Only approved oil burners are permitted to be installed in Irvington, and a permit is only given after an inspector of the Bureau of Combustibles has found that all requirements of the Oil Burner Code has been complied with. If they are not complied with, the heater is shut off until they are met.

The greatest cause of oil burner fires is due to carelessness of the owner or the party making the installation, or in other words, lack of proper service to the ignition, oil supply, and carbon in the furnace and chimney.

We merely check up to see that no combustible material is stored or kept near heating unit.

W. C. Watters, Chief, Oak Park, Ill.: We have very few fires originating from oil burners at the present time, due to the fact, they are installed with automatic safety controls.

We do not, at the present time, consider oil burners to be a serious hazard.

Fires that have been caused by oil burners are due to old type burners, or burners which are not properly serviced and repaired from time to time.

We have an ordinance as to the installation of oil burners and fuel oil tanks. A permit must be taken out before the installation is started. The Fire Inspector gives location of tanks and makes final inspection of burners and tanks after installation is completed.

Joseph N. Sullivan, Chief, Utica, N. Y.: Oil burners, such as are used in dwellings for heating purposes, are divided into two classes:

1. The range oil burners, which, in 50 per cent of the cases, is a serious fire hazard and

2. The power burner, which when properly installed and serviced does not add to the fire hazard.

Our experience with the range oil burner is bad; with the power burner our experience is good.

The range oil burner fire causes include: Flooding of the burner:

mechanical injury to the piping; breaking of glass bottles and improper handling of oil.

Power burner fire causes have been due almost entirely to non-servicing of installations and carbonizing of points; gumming of automatic safety devices, etc.

Company officers locate oil burning installations in their semi-annual inspections of buildings within their inspection district and the Fire Prevention Inspectors check the installations on their quarterly inspections.

Our laws require an electrical permit; a permit for installation of the burner; Underwriters' approval of the electrical installation, and a final certificate of inspection by the Fire Prevention Bureau.

Whenever a defect is found, the final certificate is lifted and the hazards must be eliminated.

Irby M. Klinck, Chief, Memphis, Tenn.: I have found that very few fire alarms have been caused from oil burners used to fire furnaces or low pressure boilers often found in dwellings or apartment houses. Most of the fires that were caused by oil burners did not extend beyond the furnace room and usually were confined inside the furnace or on the floor of the furnace room. The loss usually consisted of damaged equipment of oil burner or smoke damage to the interior of the house, with practically no actual fire damage to the building.

We have not found them to be a serious hazard if they are of the approved type (that is approved by the National Board of Fire Underwriters) and properly installed and maintained.

A few fires have occurred in this city where equipment became temporarily defective, usually the pilot light would fail to function, and permit the flow of oil into the base of the furnace or on the floor of the furnace room and when the fire was again started in the fire box this excessive oil would catch fire and cause a slight explosion, sometimes setting fire to the excessive oil in the base of the furnace or on the floor of boiler room.

Yes, we do make inspection. Most of these inspections are confined to industrial plants, commercial establishments, public and semi-public buildings.

Following is a report for 1928-29-30-34-35 of fires caused by heating devices using oil as a fuel.

	1928	1929	1930	1934	1935
Oct.*	0	1	0	1	0
Nov.*	0	6	4	0	3
Dec.*	3	7	1	0	0
Jan.	3	10	2	1	0
Feb.	3	6	0	2	0
Mar.	1	2	0	1	0
Totals ..	10	32	7	5	3

*Warm months.

Roland H. Weigand, Chief, Trenton, N. J.: The fires originate in oil burners mostly from carelessness and lack of attention. We have not found them to be a serious hazard up to the present time.

I find the principal reason for fires in oil burners are due to the lack of attention, and carelessness on the part of the caretaker.

Inspectors check up on the hazards surrounding and recommend the elimination of them.

O. J. Parker, Chief, Atlanta, Ga.: We have had some serious fire starting from oil heaters, though not of recent date, as in the past the automatic feed would not function properly and the oil would overflow, become ignited from the pilot light and cause fire.

August G. Derra, Chief, Schenectady, N. Y.: Our local ordinance pertaining to fuel oil burner installations is rigidly enforced. We have no criticisms to offer and have only a small number of calls each year.

Some such fires are caused by short circuit in wiring, motor trouble and in a few cases, leaky oil feed lines.

Inspectors check burners after each fire call and inform owners to have the service man report for an inspection before starting oil burner. Inspectors inspect burners when a complaint is received. They also check burners when making regular inspections.

E. F. Coop, Chief, Pasadena, Cal.: We have had very little experience with fires originating from oil burners in dwellings, for the simple reason that natural gas is used almost universally.

We do not find the properly installed oil burners a serious hazard. The only fires caused by oil burners in our city have been due to overflowing fuel, and in every case the fire was confined to the oil sump.

Our inspectors do check up on the few oil burners we find in commercial institutions and require compliance with our Fire Prevention Code.

Maurice Keating, Chief, Rochester, N. Y.: When oil burners first came out they constituted a serious fire hazard. But due to perfection in their manufacture and installation in recent years this hazard has been greatly decreased. Now we have very few fires caused by oil burners.

Lack of servicing, I believe, is the cause of many of the fires in such devices.

Our ordinance relating to oil burners was adopted in March, 1925. This requires that persons installing oil burners must obtain a permit from the Commissioner of Public Safety. This ordinance specifies the type of fuel to be used, how the fuel must be stored, where it shall be stored and the quantites of oil permitted to be stored in places where oil burners are in use. Penalties of fines or imprisonment or both are placed on those violating this ordinance.

John C. Moran, Chief, Hartford, Conn.: During the last four or five years we have had hardly any trouble from oil burners used in dwellings for heating purposes.

Our ordinance regulating these burners is very specific. It governs the sale and installation of these burners as well as the delivery and storage of oil so that the hazard is reduced to a minimum. Flooding of burners have caused fires in most instances.

L. P. Willis, Chief, Pueblo, Col.: Our experience with oil burners, in our city is not very extensive as there are not many oil burners used. The only ones we ever had trouble with were home made ones that burnt crank case oil. As the oil passed through a screen, which was supposed to remove any substance that might close the pilot light, the oil exploded, one doing quite a bit of damage. This is the only case where we have had fires caused from oil burners.

Wherever our inspectors find an oil burner, they check up on it.

Robert Jones, Chief, Chattanooga, Tenn.: We have been extremely fortunate in not experiencing fires that have originated from oil burners used for heating purposes.

Not having had the experience of fires originating from oil burners, it would be somewhat difficult to ex-

English Firemen Test a New Extinguishing Agent

Firemen of Slough, England, are testing a new chemical fire extinguisher on a burning automobile. The new "extinguisher" is a nozzle which produces foam when supplied with water and saponin extract. The small hose on the near side of the nozzle draws the saponin from a canister on the back of the hoseman.

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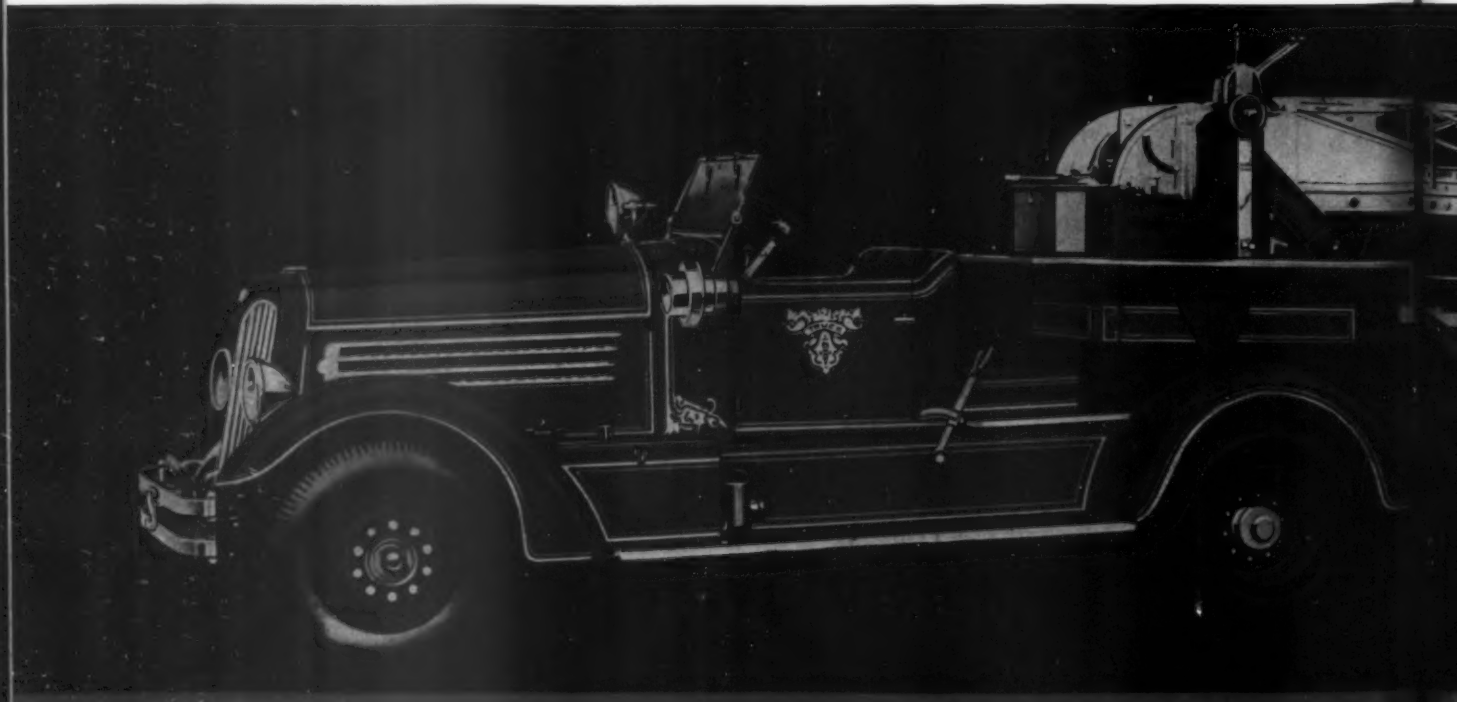

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This all-steel ladder is less than a hundred pounds heavier than a wood ladder of the same size, but it has more than double the strength. . . . It may be equipped with a ladder pipe attached to the top section, as illustrated on the opposite page. . . . The ladder having three sections makes possible the shortest truck yet produced. The 85-ft. aerial ladder truck illustrated below is less than 50 feet long. . . . Think what that means on congested streets and in crowded apparatus room.

Raising . . . lowering . . . extending . . . retracting . . . rotating . . . are all accomplished with smooth, never failing hydraulic power. . . . One man puts the ladder in any position without effort. . . . Auxiliary power for operating the ladder is available if desired.

Powered with the great Seagrave V-12, 240 horsepower motor, the Seagrave Hydro-Aerial represents the last word in modern aerial ladder truck construction, and it may be truly said . . . Seagrave leads again!

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press an opinion. I believe that I would consider it somewhat hazardous.

All officers and men make monthly inspections of all buildings to see that all fire hazards are removed, and if during the course of inspection, oil burners are found that are considered defective or hazardous, a report is made out and the owner notified to correct the condition existing.

To install oil burners, permits must be secured from the City Building Inspector and the installation must come under his supervision.

John Gibson, Chief, Mt. Vernon, N. Y.: Our percentage of fires from oil burners is very small and the damage has been very small; mostly a smudge damage.

Most fires from oil burners have originated in burners that have been installed for a period over seven years. They are due to faulty ignition, broken oil line at burner, not using grade of oil as recommended by manufacturers, etc.

George A. Wood, Chief, Niagara Falls, N. Y.: Oil heating has not caused any trouble for two years. The Building Commission makes all inspections of such installations.

W. M. Mullins, Chief, Roanoke, Va.: All oil burners in our city are installed according to the National Board of Fire Underwriters specifications and are inspected by the building and plumbing inspector at time of installation, and every thirty days by the Fire Department during the win ter season.

* * *

Answers to Previous Questions

The following replies were received in answer to a previous question on the advantages or disadvantages of competitive drills:

C. M. Johnson, Chief, Knoxville, Tenn.: It is my opinion that competitive drills are the best system.

I am whole heartedly in favor of competitive drills, because it tends to bring out what there is in a man. It promotes a spirit of rivalry among the men, and also brings out the fact whether or not an officer is competent and if his men are capable. It also brings out natural qualifications for leadership among the men, and a man who desires to obtain a promotion will quite naturally strive to appear at his best in competitive drills.

In the ordinary type of drills, too often records are not kept, and the man who just drags along, and is just getting by will get just as much credit as the man who really makes an effort to do his best, and who takes an interest in his job, always aiming toward a promotion.

Ralph J. Scott, Chief, Los Angeles, Cal.: We have never felt that competitive drilling was advantageous to the Los Angeles Fire Department.

We have experimented with it to some extent from time to time during past years and in every instance have abandoned it and returned to the standard drill practice. Our impression is that thoroughness is sacrificed for speed in competition, and while results may be impressive in "set" drills which are well rehearsed, in practice these set conditions are not present. In competitions involving rope work and knot tying this is most apparent. Men will make a wonderful showing with ropes laid out and arranged in advance, and are likely to be helpless with the same knots if required to execute them under conditions and circumstances liable to be encountered in practice.

This department believes in drilling, of course, and tries to prepare its men so that they may function under all sorts of conditions. However, we do not believe that competitive drills between companies will be productive of best results, for this department at least.

Fire Instructors Meet

Oregon's first Fire Instructors' Training School was held at Salem, from October 26 to October 30, inclusive, with ten firemen from many parts of the state in attendance. The organization of this school marked the first step in the formulation of a training program for the paid and volunteer firemen in Oregon.

The organization of the school was made possible through the cooperation of the State Board for Vocational Education, the State Fire Chiefs' Association, the State Fire Marshal's office, and the League of Oregon Cities. The instruction was under the direction of O. D. Adams, State Director of Vocational Education, and emphasis was given to methods of teaching and the organization of local classes. Two methods of teaching were presented, the direct, or four-step method, and the indirect, or conference, method. Each member of the school was given an opportunity to teach by both methods.

In addition to the instruction regarding teaching methods, four lectures on special subjects were given. E. A. Taylor, Chief Deputy Fire Marshal, discussed "Building Inspection and Fire Prevention," while Lieutenant C. A. Warren, of the Oregon State Police, lectured on "Arson Detection." W. F. Vandervelden, Fire Chief of Forest Grove, spoke on "Small Department Organization Problems," and Battalion Chief Edward Boatright, of the Portland Fire Department, gave an illustrated lecture on "Ventilation."

At the conclusion of the school, a banquet was held, at which Jay W. Stevens, Chief, Bureau of Fire Prevention, National Board of Fire Underwriters, and State Fire Marshal of California, spoke. Certificates of attendance were awarded the ten men who attended the school.

Chief Wheat, Port Jervis, Dead

Chief Howard Wheat, for nearly twenty-five years head of the Port Jervis, N. Y., Fire Department, died at a local hospital where he had been for treatment for throat injuries.

He was born in Port Jervis on May 9, 1880. In 1911 he was elected Chief Engineer of the department and he was re-elected at the completion of each term. He was a past President of the Orange County Volunteer Firemen's Association; past Vice-President of the Hudson Valley Volunteer Firemen's Association.

Chief Wheat is survived by his widow and one son.

Eddie Cantor Honored

Eddie Cantor, comedian, in appreciation for the radio sketch in which he pointed out the dangers of turning in a false alarm, was elected to honorary life membership in the Fire Chiefs' Club of Rhode Island at a meeting held in Providence.

At the same meeting Eli Aylsworth, Providence, described a trip he made to Germany aboard the dirigible Hindenburg, and P. C. Charnock, New England Insurance Exchange, discussed the question of insurance rates.

Resolutions were adopted on the retirement of Chief Henry A. Fox, Boston Fire Department, who is an honorary life member.

The club endorsed a suggestion that the State Firemen's Relief Fund be increased from $3,500 to $10,000 and that volunteer firemen, if incapacitated, receive $5 instead of $3 a day.

Oregon Fire Instructors' Training School

Top row, left to right: Lloyd Lockett, Forest Grove; Chief L. L. Mohr, The Dalles; Jack Moors, Tillamook; Chief Oliver Butts, Albany; O. D. Adams, Chief Instructor; Chief H. H. Hutton, Salem; Chief E. L. Surfus, Oregon City; Chief Tom Carlon, Bend. Lower row, from left, Assistant Chief Ray Hicks, Eugene; Chief P. J. Shepherd, Marshfield; Chief Deputy E. A. Taylor, State Fire Marshal's office; Assistant Chief Elmer Holstron, Corvallis; W. C. Wymer, State Board for Vocational Education; Fred Hunt, Salem; Warren Hyde, League of Oregon Cities.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Factors for Parallel Lines

To the Editor:

Have you any figures for changing two, or three, lines of cotton, rubber lined 1½-inch hose to a single line of 2½-inch hose? We use this layout at dwelling houses and brush fires and I have not been able so far to find the correct figure.

F. H. F.

Answer: The factor for changing 1½-inch rubber lined hose to 2½-inch rubber lined hose is 0.074.

The factor for changing two parallel lines of 2½-inch hose to a single line of 2½-inch is 3.6.

The factor for changing three parallel lines of 2½-inch hose to a single line of 2½-inch is 7.75.

The factor for changing two parallel lines of 1½-inch hose to a single line of 2½-inch = .074 x 3.6 = 0.2664, or 0.27.

The factor for changing three parallel lines of 1½-inch hose to a single line of 2½-inch = .074 x 7.75 = 0.5735 or 0.57.

Fires Involving Explosives, Etc.

To the Editor:

1. What would you do under the following conditions: In case of a cellar fire containing explosives, what orders would you give?

2. About what height can a fire stream be thrown with a city fire hydrant pressure?

How can you increase distance? State all different methods that you know of to get a greater distance.

H. B. L.

Answer: Question 1 does not state the quantity or nature of the explosives contained in the cellar.

Ordinarily a Fire Department would be aware of the presence of explosives and quantity kept on hand. An excess quantity would surely be prevented.

In the event that fire occurred in a basement involving explosive, and they are present in large quantities, the best thing that can be done would be to flood the cellar by placing lines so as to discharge down stairways or other openings. At the same time the buildings on either side, or in the near neighborhood, would be ordered vacated.

Many explosives do not explode in the presence of fire, but there is always a danger of possible explosion.

Answering the second question, the height a fire stream can be thrown by pressure in the domestic water system depends entirely upon the pressure. Ordinarily an effective stream can be directed vertically one foot, approximately, for every pound pressure at the hydrant.

Where long lines of hose are required, then this rule does not hold. The friction loss in the hose would have to be taken into account. The pressure at the hydrant minus the friction loss in the hose would give what you would have left at the nozzle, and it is this pressure which would determine the height the stream could be directed.

Where a line is in operation and it is found that reach of the stream is not sufficient for the work at hand, the range can be increased by decreasing the size of the tip. It is assumed, however, no pumper is available in this instance; otherwise, a pumper would be placed in service and the pressure at the hydrant boosted. Running parallel lines decreases the friction loss and makes available greater nozzle pressure. Lines would be siamesed in such case.

Branched Lines

To the Editor:

Will you be kind enough to answer the following?

1. Factor for changing 1½-inch hose into 2½-inch hose.

2. Constant (k) for ½-inch tip on the 2½-inch hose.

3. Average or combined measurement of tip when figuring two 1-inch tips.

4. Siamesed 1½-inch lines (2) factor for reducing to single 1½-inch line.

We have found considerable trouble in figuring problems such as the following:

Attached to an engine with 120 pounds pressures is a single line of 2½-inch hose 300 feet long, branched into two lines, of 1½-inch hose. One line is 100 feet long and the other 200 feet long. Both are equipped with ½-inch nozzles. Find nozzle pressure at tips. Find g.p.m. from each tip? W. C. O. M.

Answer: The factor for changing 1½-inch hose into 2½-inch hose is 0.074.

The value of K for ½-inch tip on 2½-inch hose is 0.00625.

Two ½-inch tips are nearest to a ¾-inch tip.

The factor for changing two parallel lines (½-inch) into a single line of 2½-inch hose is 0.2664.

And now with regard to the problem you submit:

When a single line branches into two lines, one of which is twice the length of the other, the combined length of these two branch lines is equal to one-third the length of the shorter.

The two branch lines in your problem are 100 feet and 200 feet respectively. Combined into a single line of 1½-inch hose you have an equivalent length of 33.3 feet.

Then your problem resolves down to an engine at 120 pounds pressure pumping through a line of hose made of 300 feet of 2½-inch hose connected to 33.3 feet of 1½-inch and equipped with ¾-inch tip.

Changing the 1½-inch hose to 2½-inch you would get a total of 450 feet of 2½-inch hose. Add this to 300 feet, and we have 750 feet of 2½-inch hose in the length.

N.P. = 120 ÷ (1.1 + .0316 x 15)
= 75.7 pounds.

Then find discharge from nozzle, which is the flow through the line.

Find friction loss from engine to Y connection. Deduct friction loss from engine pressure, giving pressure at Y.

Solve each of two branch lines separately, with pressure at Y as engine pressure. This will give approximate pressure at each tip.

Water for Use with Tannic Acid

To the Editor:

In regards to tannic acid spray equipment, I carry one in my car, but due to the climate I can not carry distilled water in the kit in the winter time. I wish you would please inform me if there is any danger in using well water or city water in mixing the powder in the winter time. I have talked with several Fire Department members and I am sure if you would carry an item in your columns to this effect it would help.

H. T. A.

Answer: The following information has been supplied by the Illinois Equipment Company, of Berwyn, Ill.:

"In answer to your question of using well water for preparing tannic acid solutions, we believe that it is not advisable to use well water in preparing such solutions.

"As you know, well water contains various alkaline salts in solution in varying degrees of concentration. When tannic acid is dissolved in mineral water of this type, tannates of the minerals are formed and are precipitated out of solution. This weakens the solution to a degree dependent upon the mineral content. Some ground water contains

iron in solution. In this case a discoloration takes place which is caused by the formation of a substance closely related to writing ink.

The use of distilled water in preparing tannic acid solution is recommended to insure a neutral aqueous solvent of unquestioned sterility. The sterility of the solution is of greater importance than the exact strength of the solution, which should be 5 per cent for best average results.

Most drug stores stock distilled water in gallon bottles, and practically all automotive service stations have distilled water for storage battery purposes, which may be utilized in emergencies. In those cases where it is impossible to secure distilled water immediately, any clean water which has been boiled for at least five minutes may be used in preparing the solution for emergency use, until distilled water may be procured.

Rules for Small Nozzles

In a bulletin issued by the Oklahoma Fire Chiefs' Club, some simple rules are given for the use of small size nozzles, using 1½-inch hose. The article from the club bulletin follows:

⅝-inch nozzle—Engine pressure should be 40 lbs. plus 3 lbs. for each 100 feet of hose.

½-inch nozzle—Engine pressure should be 30 lbs. plus 7 lbs. for each 100 feet of hose.

⅝-inch nozzle—Engine pressure should be 30 lbs. plus 20 lbs. for each 100 feet of hose.

¾-inch nozzle—Engine pressure should be 30 lbs. plus 30 lbs. for each 100 feet of hose.

⅞-inch nozzle—Engine pressure should be 30 lbs. plus 50 lbs. for each 100 feet of hose.

We do not recommend ¾ and ⅞-inch nozzles for use on 2½-inch hose. The only time when nozzles of this size would be desirable would be when using a pumper of less than 400 gallons capacity with two lines from the pumper. A ¾ or ⅞-inch tip might be found necessary for a line of hose exceeding 1,000 feet, and particularly if considerable elevation had to be overcome such as would be the case when the pumper was located at a stream and the house on fire was on a hill.

Formula for ¾ and ⅞-inch nozzles and 2½-inch hose would be:

¾-inch nozzle—Engine pressure equals 40 lbs. plus 4 lbs for each 100 feet of hose.

⅞-inch nozzle—Engine pressure equals 40 lbs. plus 5 lbs. for each 100 feet of hose.

Fifty pounds on a ¾-inch nozzle denotes a flow of 118 g.p.m.; on a ⅞-inch nozzle, 160 g.p.m.; on a 1-inch 209 g.p.m.

Too much pressure on a nozzle results in poor fire streams, as well as too little pressure. Excessive pressure causes the stream to break up a spray. So it is just as important that the pumper operator does not operate the pumper at too high a pressure as too low a pressure.

Various layouts of hose and nozzles should be used at drill periods to demonstrate fire stream problems.

Downey Chief of Wallingford

James A. Downey, Wallingford, Conn., has been named Chief to succeed the late John J. Luby, who held the office for many years. Chief Downey who is a veteran member of the department, takes great pride in the fact that he is the father of Morton Downey, internationally known radio and screen artist.

When the elder Downey was elevated to his new position, the son, Morton, heard of his father's success while in London and immediately wired back: "Congratulations Dad. Will dedicate 'Smoke Gets in Your Eyes' to you on my next program."

THOMAS F. MAGNER.

Chief Churchill Has Long Service

Chief J. W. Churchill has completed nineteen years as head of the Halifax, N. S., Fire Department. He is the son

Chief J. W. Churchill

of the late Lieut. George S. Churchill who founded the North West Arm Fire and on December 12, 1917, Chief of the department.

The Chief entered the service in 1895. On May 27, 1899, he was appointed Lieutenant; on June 8, 1907, Captain, and on December 12, 1917, Chief.

In 1934 he was elected President of the Dominion Association of Fire Chiefs. He is also a Provincial Vice-President of the International Association of Fire Chiefs.

Babson Urges "Buy Apparatus Now"

Roger W. Babson, head of the Babson Statistical Organization, Wellesley, Mass., was the guest and speaker at the luncheon and meeting of the Fire Chiefs' Club of Massachusetts held on November 18 in the Hotel Bancroft, Worcester.

Seated at the head table with Chief Charles L. McCarthy, Worcester, President of the club, were Mayor John S. Sullivan, Worcester; President Stanley, of the Gamewell Company, Newton; Mr. Babson, and Chief William H. Hill, Belmont, Secretary of the club.

Mr. Babson spoke on "Inflation and What It Means to the Fire Service." He said:

"We are on the verge of a distinct boom in real estate and business. The time to buy Fire Department supplies and other needed articles is the present, as you can purchase things cheaper now than you will be able to do in the future. Although inflation is not a healthy condition, it is a distinct stimulant to business. Fire Department supplies are bound to increase in cost and the wages of firemen must be increased within the next few years.

"A period of good business is just beginning. Municipalities will have more money to spend, but as inflation raises wages, the tax assessments will also increase."

In closing his address Mr. Babson declared that he had been a "buff" or "spark" since boyhood days in Gloucester, Mass. He said that Fire Chiefs are among the finest men in municipal service. They are marked by integrity, courage, and devotion to duty.

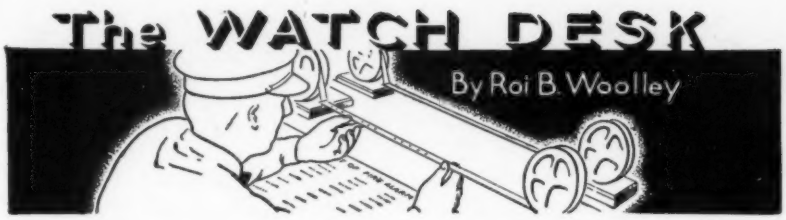
Mr. Babson was elected an honorary member of the club and William H. Brown, of Lynn, Mass., President of the United Pyro Chemical Corporation, makers of "Kant Blaze Blankets," was elected an associate member.

The next meeting of the club will be the annual ladies' day and Christmas party, which will take place in the roof garden restaurant of the Parker House in Boston on December 16.

HARRY BELKNAP.

Training for the Rescue Squad of the Denver Fire Department

Equipment has been provided the Rescue Squad of the Denver Fire Department for carrying on underwater work. A fireman, in a diver's suit is here shown about to submerge while two men look after the air pump, and the other two supervise the cable to the underwater light, and the signal rope.



Our inquiring reporter overhauls the firemanic news of the day.

"Let Us Spray," Said Firemen!

Lacking water, Vol. firemen of Winona [Wis.(?)] saved the old Witoka schoolhouse, near that town, by moving large tanks of buttermilk from nearby farm and spraying it to douse roof fire started by lightning.

Sign Him Up for Siren!

Any F. D. want a human siren? See Hugh Wilder, Newport (Vt.), who, according to Police Chief Gardner can shout louder than city's fire siren. Hugh, visiting in heart of city, howled loud enough to awaken slumbering residents on East side, mile distant. Fire was *in* Hugh, so police "extinguished" him to tune of $14.45 fine.

More Toy Balloon Hazard

Eighteen persons were injured, three seriously, in an explosion of gas-filled balloons at the St. Mary's University of San Francisco football game. Injured were caught in sheet of flame which spread across Kezar stadium after one of balloons was ignited by cigarette. Resulting explosion fired scores of other balloons. Balloons were released near 20-yard line to carry political advertising . . . drifted into crowd. About 50 of 500 bags exploded.

Orchids to Milkmen Heroes

Milkmen heroes were honored recently by presentation of Pasteur Medals before representatives of milk industry in convention at Atlantic City. Among them were: Harry Schmidt (N. Y. C.), who, while on early rounds, smelled gas in an apartment, awakened tenants, turned off gas jet, saving father, mother and children.

John Grote, Riverdale (N. Y.) bronze medal for prompt, heroic action in extinguishing incendiary fire in two baby carriages under wooden stairway of 5-story tenement and rousing tenants of smoke-filled building. Grote burned his hands putting out fires.

V. Romano, Brooklyn milkman, bronze medal, for quick action in saving tenants from possible serious fire.

F. D.'s owe early morning milk carriers debt of gratitude: they've discovered many fires—helped save scores of lives. Every community might well offer awards for this outstanding service.

Prefers Anonymity

A bundle of "hot ones" comes from a certain fireman in certain town with two complaints (1) that we used his name on previous items he sent, and he doesn't want credit and prefers to remain "in cog" and (2) that FIRE ENGINEERING is only printed once a month."

Well, we'll respect his wishes, and quote from his latest batch of news as follows:

Mrs. Norma Weidhofer, strolling along street in New York City was told by excited neighbor "Your house is on fire." Mrs. W. stared coldly at excited neighbor. "Will you mind your own business," she said. Leisurely continuing stroll to police station, she reported she had set house on fire. She said: "I'm tired of living there; place made me nervous; my husband didn't want to move, so I fixed it so we would have to move." But F. D. fooled'er by smothering blaze before much damage was done.

* * *

Firemen of Rochester (N. Y.), attending service at the Methodist Church were rudely called away when excited person pulled box 13 in business section for auto fire. Box calls all downtown companies—and called down curses on head of "alarmer."

* * *

Firemen of Boston rushed to Park Street subway for fire, only to find fire couldn't wait for 'em and had "went its way" to burn out somewhere along the line back to Fenwick Park. It seems a subway car and trailer full o' football fans got afire, entering Park Street Station. Passengers were sent into car ahead, but instead of waiting for F. D., motorman continued on way.

* * *

Swampscott (Mass.) firemen had two alarms, both accidentally false, from same box at midnight one night. Calls took all F. D. to highest point in town requiring neighboring communities to cover up while Swampscott men hunted the fire. Alarms were sounded when auto struck pole on which box was located, sounding alarm. A loose connection in the box sounded the second alarm from same box.

Worse Than Poor Box Robbers!

New low in meanness was reached when gasoline thieves entered F. D. engine house in Lubec (N. B.) and drained tanks of pumper and combination truck. Luckily Chief John Trecartin discovered theft when he examined truck next morning. Poor-box robbers steal money—these jackals stole safety of entire town. To Mr. Ryder, of St. Stephen F. D., St. Stephen (N. B.), who sent this item on F. D. stationery, we owe another debt. This is the only community we know that has catch-phrase to advertise the F. D. Its letterhead bears this slogan: "ST. STEPHEN FIRE DEPARTMENT—We Aim to Save More Than the Cellar." Below this is the line: "Telephone 13—The Unlucky Number." Here's a coupla ideas for you Chiefs!

Disappointed Pupils

Billows of black smoke pouring from windows of Garden City (L. I.) high school brought hundreds of persons, including many pleased students, as Vols. rushed up with all apparatus, and went to work. Excitement grew—traffic jammed up—as everybody in town headed for "big blaze." Cry for help sent Vols. racing with life net just in time to catch "body" hurtling down from roof. Alas, "body" was dummy, and whole affair was staged for Garden City Village Board, as part of annual drill and inspection. Students retired, cussing.

News Flashes

All credit to Theodore Luigi, aged 22, who, while hunting, dropped his rifle to enter blazing farmhouse and rescue a baby, only to have child die from burns. Two other children killed from the blaze that razed home of Floyd Bullock, WPA worker, near Scranton (Pa.). . . . Fire, started by gasoline explosion, wiped out entire village of Cuba de Atacama, Chile. . . . Mrs. Catherine Storye, aged 83, liked to smoke clay pipe in bed. She died in hospital Brookline (Mass.) as result. . . . Police of W. 47th police station (N.Y.) startled when engines screamed to halt in front of the station recently. Neighbors saw steam escaping from rear window! . . . Probably youngest "false-alarmer" is Susan Bernstein 4-year old miss (N.Y. City) who stood on her tricycle to reach handle of box. Papers didn't help false alarm evil any when they showed photos of Susan, posed to illustrate just how she did it! . . . Louisville (Ky.) F.D. got jitters when V. M. Davis, convicted twice in three months of turning in false alarms, escaped from city's workhouse farm. He was serving 50-day sentence for second offense. . . . Two autos collided in Queens (L. I.) recently, caromed against fire box, turned in alarm as they burst into flames. . . . Peter Neubig, aged 10 (N.Y. City) spent some days in hospital as result of boys setting fire to his Indian costume while he was "stalking red men" in Central Park.

Note to contributors: If you do not read your news contribution in the next issue of FIRE ENGINEERING don't despair—if it's suitable it will ultimately find its way into print.

Editor, Watch Desk.

WHAT DO YOU KNOW?

The Editor of "The Watch Desk" welcomes contributions from readers of FIRE ENGINEERING that briefly give facts about interesting, odd things that have to do with fires, fire-fighting, etc. Address "Editor, Watch Desk."

FIRE SPREADS FROM BOSTON PAPER WAREHOUSE TO OLD GRIST MILL

Five Alarms Sounded for Night Fire in Charlestown Section of City—Alarm Delayed by Night Watchman

By Harry Belknap

FIVE alarms, on the night of November 27, were sounded in rapid succession from a box in the Charlestown section of Boston, Mass., for a fierce blaze which originated in a 2-story brick paper storehouse. Fire had spread to an adjoining 5-story brick warehouse known as the Old Grist Mill by the time the first apparatus reached the scene. The delay in sending the first alarm was partly due to the fact that the night watchman, upon discovering the fire, telephoned to the owners before notifying the Fire Department.

Two Views of Fire Which Spread from Paper Warehouse to Grist Mill in Boston, Mass.

Chief Samuel J. Pope, recently appointed head of the Boston Fire Department, was in charge at the fire and succeeded in preventing a spread of the flames to the nearby Hoosac Tunnel Docks of the Boston and Maine Railway. He was assisted by Deputy Chief Louis C. Stickel and Deputy Chief Thomas H. Downey, and three district chiefs.

At 10:54 p.m. fire alarm headquarters received a telephone call from the Boston Globe, owners of the newsprint paper, that the watchman at the storehouse had telephoned a report of a fire there. Engine Company No. 47, Engine Company No. 50, Ladder Company No. 9, and District Chief Philip A. Tague were ordered to the scene by the fire alarm dispatcher on a still alarm response. At 10:55 a box alarm was received, and this same box was pulled again at 10:56, and at 10:56½ the Chief's driver reported at the box. The second alarm was ordered at 10:59, followed by a third at 11:04, fourth at 11:06½, and a fifth alarm at 11:13½.

An alarm from Automatic Box 195-4 in the storehouse at 38 Charles River Avenue was received at 10:57 and an alarm was received from Automatic Box 1215 on Pier 40 Hoosac Docks at 10:59½, but these signals were not transmitted.

Two fireboats assisted the land companies at the fire, and used deck guns effectively. Five wagon guns, five deluge sets, one water tower, and four portable guns were used. Twelve lines were taken to the roof adjoining the Hoosac Docks and from this vantage point eight hand lines and four portable guns were operated. Five streams were directed from a 5-story building across the railroad tracks from the Grist Mill and another line was operated from the top of a freight car.

There were 25 motor pumping engines, 25 hose wagons, two fireboats, one rescue company, one water tower, five ladder companies, two lighting plants, and two fuel supply trucks at the fire, also wagons of the Boston Protective Department and emergency crews from the Boston Consolidated Gas Company and Edison Electric Illuminating Company. The protective department lost 50 salvage covers which had been spread on the lower floors of the grist mill and which were buried beneath the falling roof and floors.

The apparatus in service included American-LaFrance, Seagrave, and Mack pumpers and American-LaFrance ladder trucks. Morse deck guns and Eastman and Baker portable guns were used. Thirty-five streams were used and the size of nozzles ranged from 1¼-inch to 1½ and 1¾-inch on the portable guns and 2-inch on the water tower. Plenty of post type hydrants were available and the pressure was good, averaging 50 pounds or more. Three aerial ladders were raised. Over 13,000 feet of 3-inch and 2½-inch hose was laid and only one length burst.

The grist mill building, loaded with bags of flour and sugar, was 5 stories high of second class brick construction, with mansard roof. It was about 75 feet by 90 feet in area. Adjoining it on the east was a 2-story brick power house and on the south, separated by a very narrow alley, was a large 2-story brick storehouse filled with huge rolls of newsprint paper. This building in turn

was connected with a long 2-story brick shed, 400 feet long and 50 feet wide, extending out along old Tudor Wharf, with a one story shed covering a siding, on which were six loaded freight cars, which were also destroyed. A small galvanized iron shed at the end of the wharf was saved. Cellar pipes were used to reach flames underneath the pier. The fireboats in service were the "Matthew J. Boyle" (Engine 44) and the "John P. Dowd" (Engine 47). Engine 44 was specially called to the scene as Engine 31 (fireboat) was temporarily out of service for inspection.

Three lines of hose were run down Pier 40 by the crews of Engine Companies Nos. 32, 12, and 15 and standpipe lines were also used on this dock, which ignited in several places on the roof and pier shed due to intense heat from the wind driven flames, as well as the exposure from sparks and flying embers.

Ten engine companies and four ladder companies were on duty until 6 p.m. and after this a detail of thirty men was kept at the scene for two days with watch lines and a fireboat. The ruins became sheathed with ice as the temperature was only 14 degrees. One fireman suffered a broken leg and three others had minor injuries.

The grist mill and store house were not fitted with automatic sprinklers, but there was a thermostatic alarm in the storehouse. The newspaper estimates of the loss ran as high as $500,000, but the exact figures of the damage are not yet available. There was much valuable machinery in the grist mill building, and the storehouse held 1,600 tons of newsprint paper.

WHAT'S BURNING

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of November, 1936. These figures, compiled from the telegraphic reports, are based on estimates made at the time, and are subject to later investigations and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending November 30

	Loss in Thousands of Dollars
Los Angeles, Cal.—Sardi Restaurant damaged	$ 80
Auburn, N. Y.—Boathouse of T. W. Case on Owasco Lake	70
Southboro, Mass.—St. Anne's R. C. Church damaged	50
Vancouver, B. C.—Mill of Burrard Shingle Co., destroyed	50
Jamaica, N. Y.—Building of Jamaica Loan Co., damaged	80
Los Angeles, Cal.—Cotton Oil warehouse damaged	800
LaGrange, Ga.—Troup County Courthouse destroyed	50
Dorris, Cal.—Sawmill of Associated Lumber & Box Co.	50
Los Angeles, Cal.—Plant of Telegraph Refining Co., damaged	80
Galveston, Tex.—Yacht owned by A. C. Burton, damaged	50
Montmagny, Que.—Manufacturing plant destroyed	50
Palo Alto, Cal.—E. C. Thoit Co. shoe store destroyed	50
Chicago, Ill.—Garage of United Dairies, damaged	70
Battle Creek, Mich.—Store of Gamble Auto Accessory & Hardware Co.	80
Chicago, Ill.—St. Philomena's R. C. Church damaged	125
Kimberly, W. Va.—Koppers Coal Co. store, 3 mi. out	70
Los Angeles, Cal.—Malibu Lake Mountain Club destroyed	200
Danville, Va.—Weissinger Apartment bldg. damaged	60
Portland, Me.—Storage plant of Portland Fish Co.	170
Oskaloosa, Iowa—Fitch auto supply store damaged	70
Sydney Mines, N. S.—Archibald block damaged	250
Los Angeles, Cal.—Whse. and factory of Los Angeles Bedding Co.	80
Philadelphia, Pa.—Pier of Moore & McCormack Steamship Co.	800
Bluefield, W. Va.—Kresge building destroyed	150
Jamestown, N. Y.—Nelson department store damaged	125
Opelousas, La.—Washington high school destroyed	70
Atlanta, Ga.—Bldg. of Cable Piano Company	170
South Alexandria, La.—Property of Roy O. Martin Lumber Co.	80
Binghamton, N. Y.—Deyo building destroyed	80
South Boston, Va.—Lee Theatre and adj. business property	60
Monterey, Cal.—Plant of Delmar Canning Co., destroyed	750
Stoneville, Miss.—State-owned cotton gin and seed house at Delta Experiment Station	65
Charleston, Mass.—Whse. on Tudor's Wharf owned by Boston Globe	325
Portsmouth, Va.—Bus Terminal and adj. property	120
Ottawa, Ont.—Mayno Davis Lumber Mill damaged	125
Atlanta, Ga.—Plant of West Lumber Co., damaged	50
Fresno, Cal.—Cotton whse. operation by John Green	500
Fort Lee, N. J.—Marden's Riviera, atop the Palisades	120
Sylvania, Ga.—Screven oil mill damaged	200
Aberdeen, Miss.—Property of Federal Compress & Whse. Co.	80
Holyoke, Mass.—Factory bldg. owned by Zeloid Products Co.	50
Pembroke, N. H.—Pembroke Academy destroyed	50

Gas Tanks Threatened at New Haven

Eight firemen were injured, and damage estimated at $300,000 was done during a spectacular, general alarm fire that destroyed the four-story brick building of the old Candee Rubber Company on East Street, New Haven, Conn., on November 27. Every piece of available fire apparatus in the city was called to fight the flames, which for a time threatened three large illuminating gas tanks across the street from the Candee building. At the height of the blaze firemen kept the tank drenched with water.

The building housed sixteen business firms, mainly manufacturing concerns. The temperature during the fire stood at 21 and the vicinity of the burned building became ice-coated as firemen under command of Chief Lawrence R. Reif, directed 50 hose lines on the blaze. The building had a frontage of about half a block. Fire appeared to have started in quarters of the Gem Upholstery Company, which were a mass of flames when firemen were called to the scene.

Assistant Chief Francis O. Spaine, of Headquarters, a lieutenant and a squad of five men, first to arrive, had a narrow escape when flames shot at them, after they had chopped a hole through the second floor of the building. Firemen said that rubber boots which they wore melted by the intense heat.

Besides the Gem Upholstery Company, the companies leasing the quarters in the burned building included a printing establishment, two paper box companies, a firm manufacturing pajamas, shirts and other apparel and the Connecticut Chemical Company.

THOMAS F. MAGNER.

Chief Tisius, Alton, Ill., Dead

Chief John C. Tisius, Alton, Ill., forty-nine years old, died at a local hospital as the result of a ruptured gall bladder and other physical conditions.

He entered the fire service as night man twenty-four years ago. Except for a period of two years, he has been in the service ever since. He was named Chief in 1933. In his younger days, he was one of the leading semi-professional baseball players in that part of Illinois. Chief Tisius is survived by his widow, two daughters, a brother and three sisters.

Every Available Fire Unit in New Haven, Conn., Was Called to Fight This Manufacturing Building Fire

By William Paul Babcock

CONGRATULATIONS to Chief Harry Joachim and the Haverstraw, N. Y., Fire Department, particularly officers and members of General Warren Engine Company who have of their own volition recently converted themselves into a "Squad" outfit. This, then, is the second salvage unit in Rockland County. Of course, like all "fully equipped" units of this type, they are prepared to do rescue, first-aid and flood-light work also; thus, like the Nyack Fire Department, giving 100 per cent protection.

By the way, the thought occurs here that the term "fully equipped" is deserving of some serious thought.

It has been said by other writers, and I hold it to be true, that today no Fire Department is fully equipped, unless it provides salvage work.

I know that many, if not most, volunteer fire fighters of the old school scoff at that statement. They have always contended that they are organized for the purpose of extinguishing fires. We hear some of that theory around National Fire Prevention Week.

But I will venture to assert that most, if not all, charters or certificates of incorporation, whereby volunteer fire companies or departments have been officially recognized by their civic governmental bodies, will contain the information that their duties include the "preservation of life and property." There are no specifications as to the type of apurtenances they must use in this work, for the very good reason that, as we progress in any type of public or private service we learn of improvements and betterments. And since it has been thoroughly established as an undeniable fact that *at least* 75 per cent of the damage at fires is done by the water necessarily (more or less) used in extinguishment, I believe "it must follow as the night the day" that salvage work really is a very essential part of firemanic service in the proper and thoroughgoing performance of the fundamental duties prescribed by your charter.

I have many more arguments in support of my belief, if any one wants to cross lances with me, but right here the thought uppermost in my mind is that *You* may have a very *Merry Christmas* and *Happy New Year.*

Study Made of Fire Losses

Insurance companies traditionally are resigned to increases in the fire loss ratio as the normal working of the fire cycle, with bad years certain to follow good ones. But when studies now being made by the American Mutual Alliance reached the graph stage they began to reveal a startling correspondence between the ratio of business failures to concerns in business on the one hand, and the ratio of fire losses paid to premiums written on the other. One coincidence was the fact that at the depths of the depression, when failures were the highest in percentage since 1878, the fire loss ratio was also the highest since the San Francisco fire year of 1906.

At once several of the larger mutual companies began to investigate all their suspicious fires thoroughly, and the extensive evidences of arson and negligence uncovered indicate that insurance companies have not been according these factors nearly enough weight in the past.

Because independent adjusters employed from time to time by the mutual companies are found to have reported an unusually high percentage of the fires they investigated as "of unknown origin," another of the recommendations made by the Secretary of the Federation of Mutual Fire Insurance Companies, will urge a more rigid supervision of adjusters. A result of the meeting may be a move to confine the adjusting of losses for mutual fire companies exclusively to adjusters familiar with the close relationship which exists between company and policyholder under the mutual plan.

Pope Appointed Boston Chief

Samuel J. Pope was appointed Chief of the Boston Fire Department on November 21 by Mayor Frederick H.

Chief Samuel J. Pope

Mansfield with the approval of Fire Commissioner Edward F. McLaughlin to succeed Chief Henry A. Fox, who retired on pension on November 18. Pope has been Deputy Chief in charge of the Fire Prevention Bureau at headquarters for the past two years. He is one of the youngest men ever appointed to command the Boston fire fighters.

Chief Pope was born on September 15, 1889. He is a bachelor and makes his home at 33 Cordis Street in the Charlestown district of Boston. Two former Boston Chiefs, the late Chief Peter F. McDonough and Ex-Chief Daniel F. Sennott were also born and reared in the Charlestown section of the city.

Appointed to the department on February 24, 1913, Pope's rise through the ranks has been a rapid one. He was named aid to the late Deputy Chief Edward J. Shallow on May 1, 1922; promoted to Lieutenant on April 12, 1926; to Captain on August 22, 1927; to District Chief on February 28, 1930, and to Deputy Chief on July 6, 1934.

He served first as a hoseman with Engine Company No. 41 in the Brighton district and from there went to Engine Company No. 4 at the old Bulfinch Street firehouse in the city proper.

Later he served with Ladder Company No. 8 in Fort Hill Square and then went to Engine Company No. 8 in Salem Street as a Lieutenant. In 1927 he went to Engine Company No. 22 in Warren Avenue as Captain. He also served with Ladder Company No. 13 and Ladder Company No. 1, and in 1930 became Chief of District No. 7. He was assigned to head the Fire Prevention Division on May 10, 1934, upon the retirement of Deputy Chief Albert J. Caulfield.

The new Chief made his first public address upon the evening of November 23 when he attended the installation of officers of the Boston Fire Department Band.

HARRY BELKNAP.

Nebraska Firemen Meet

Fay H. Wood, was elected President of the Nebraska Volunteer Firemen's Association convention held at Columbus. The other officers are Carl E. Werener, Battle Creek, Vice-President; Louis Novak, Norfolk, re-elected Secretary-Treasurer. During the convention, there was a parade of visiting fire companies and a dance at the city auditorium.

It's Golden Wedding for Ex-Chief Clancy

For eleven years, or ever since he retired as Chief of the Milwaukee, Wis., Fire Department, Thomas A. Clancy has managed to keep out of the newspapers. But when he celebrated his golden wedding anniversary, there were a large number of friends on hand, and newspaper men as well. Chief Clancy had served as Chief for twenty years and was a member of the department for forty years.

CORRESPONDENCE

None Killed—Several Hurt

To the Editor:

I noted the picture on the cover of your November issue showing the accident involving Engine No. 34 on the corner of Everett and Holton Streets, Brighton, Mass.

We are pleased to correct your notation of "one fireman killed." Fortunately no man was killed although all were seriously injured. At the present time three of the men are walking around and the fourth is recovering rapidly and is expected to be up and about soon.

Very truly yours,

BENJAMIN W. ELLIS.

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A Homelite is ideal for fighting night fires. It weighs only 89 pounds complete with built-in gasoline engine. One man can carry it—set it up quickly wherever it's needed most—**without the use of long cables.** It generates 1250 watts—operates several brilliant lamps without trouble or manual attention. Completely dust-proof, oil-proof, and water-proof, it starts instantly even in the coldest, wettest weather. Air-cooled engine won't flood, freeze or overheat.

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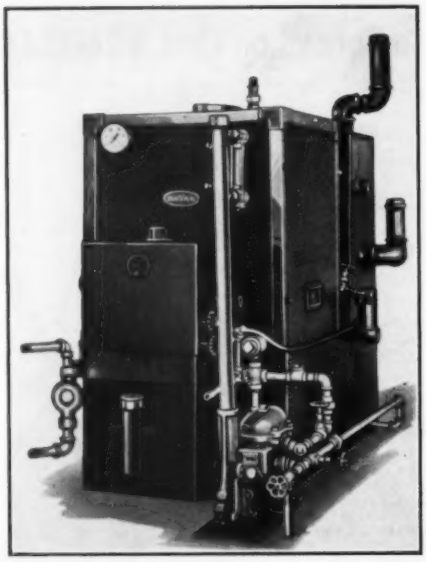

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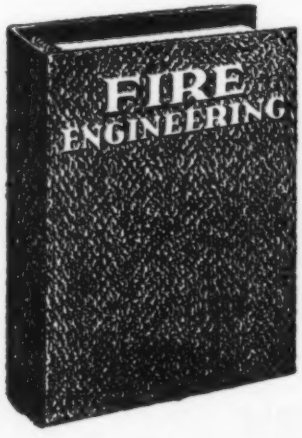

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Chief Fox, Boston, Retires

Chief Henry A. Fox, Boston Fire Department, retired on pension on November 18, having reached the age of 70 years, when retirement is compulsory

Ex-Chief Henry A. Fox

for Boston municipal employees. Each one in the department was sorry to see him go. The esteem in which he is held by his associates was shown in a testimonial dinner, which was given in his honor at the Hotel Kenmore on the night of November 16.

He was appointed to the Boston Fire Department on October 15, 1886; promoted to Lieutenant on June 28, 1895; promoted to Captain on October 26, 1900; promoted to District Chief on March 9, 1906; promoted to Deputy Chief on July 12, 1920; promoted to Assistant Chief on December 26, 1924, and to Chief of Department on May 26, 1930.

In an editorial on November 13 the *Boston Post* said:

"In 1886 Henry Fox got a job in the Boston Fire Department. He was a good fireman and an ambitious young man. He fought his way through all the grades from that of private to Chief of the department. After more than 50 years of service he is retiring. He has a record of which to be proud. Things did not come easy for him through his career. He had to work and study. In the end he mastered his job. There are few public servants with a record as long as his. Boston has good reason to be proud of him."

The souvenir program of the testimonial banquet contained the following tribute:

"Giving fifty years of faithful and untiring service to his native city in the Boston Fire Department, which he has always loved and which he still loves—beginning at the very bottom rung of the ladder and moving up step by step to the exalted and important position of Chief—displaying fortitude and courage in his duties and faith in his fellow men—Henry Fox has earned and enjoys the respect and admiration of all who know him. His numerous friends salute him with this tribute and expression of their deep affection and highest personal regard."

The committee in charge of arrangements for the dinner was headed by Fire Commissioner Edward F. McLaughlin, Honorary Chairman.

Seated at the head table were:

Fire Commissioner and Mrs. McLaughlin; Acting Mayor John I. Fitzgerald; Chairman Eugene C. Hultman, of the Metropolitan District Commission; Acting Postmaster Peter F. Tague; Chief Frank Charlesworth, Providence, R. I.; Rev. Charles N. Cunningham St. Paul's Church, Dorchester; Hon. John J. Attridge; Russell Codman, Jr.; Chief and Mrs. Allen; Deputy Chief Downey; Chief and Mrs. Fox, and Senator Lawrence Curtis.

The occasion was enlivened by an orchestra and floor show and there were fancy hats, favors, and noise makers at each table. Chief Fox was presented with a check for a substantial sum and Mrs. Fox was given a huge basket of American Beauty Roses by Chief John W. O'Hearn, Watertown, Mass., in behalf of the New England Association of Fire Chiefs.

The speakers paid high tribute to Chief Fox as a man and as a fire fighter. When he arose to speak he received a real ovation, a fire siren and bell adding to the bedlam of noise. The Chief told some reminiscences of the days of horse drawn apparatus, paid tribute to the Commissioner and to his aids and associates, and expressed the hope that his successor will have the same loyal support and co-operation.

Officials at the Banquet

Out of town officials attending the banquet included:

Chief Carl D. Stockwell, of Burlington, Vt., President of the New England Association of Fire Chiefs; Chief Daniel B. Tierney, of Arlington, First Vice-President of the International Association of Fire Chiefs; Chief Fred A. Clark, Attleboro; Chief George L. Johnson, Watertown; Chief Hugh L. Eames, Reading; Chief Henry Harrigan, Dedham; Chief Clarence R. Randlett, Newton; Chief Thomas A. Qualey, Medford; Chief Herman L. Gutheim, Cambridge; Chief Harold Conron, North Reading; Chief Manuel Miguel, Manchester; Chief William C. Mahoney, Peabody; Chief William J. Sands, Quincy; Fire Commissioner George Goode, Brookline; Daniel J. Looney, Secretary of the Massachusetts State Firemen's Association; Alfred N. Miner, of the Massachusetts Safety Council; P. Hildreth Parker, President of the Box 52 Association; Paxton Mendelssohn, the Box 12 Associates, Detroit, Mich.; Percy C. Charnock, New England Insurance Exchange, and George F. Cobb, Commissioner of Firemen's Relief.

Those Who Sent Greetings

Telegrams of greetings to Chief Fox were received from:

Chief Robert Bogan, Baton Rouge, La., President of the International Association of Fire Chiefs; Chief John M. Evans, New Orleans, La.; Chief Ralph J. Scott, Los Angeles, Cal.; Chief Michael J. Corrigan, Chicago, Ill.; Superintendent Frank McAuliffe, Chicago Fire Patrol; Chief John C. Moran, Hartford, Conn.; Fire Commissioner C. Hayward Murphy, Detroit, Mich.; Ex-Assistant Chief Thomas F. Dougherty, New York City; Chief Charles J. Brennan, San Francisco, Cal.; Jay W. Stevens, State Fire Marshal, San Francisco, Cal.; Chief John J. McElligott, New York; Fred Shepperd, editorial director, FIRE ENGINEERING; Police Commissioner Eugene M. McSweeney, Boston; Chief Walter Israel, Detroit, Mich.; Chief George Sinclair, Toronto, Canada; Chief Oliver T. Sanborn, Portland, Me.; Frank H. Smith, ex-Lieutenant of Chemical Co. No. 5, Boston; District Chief William McCorkle, Boston; Miss Louise Washburn, and Miss Nell J. Anthony, of Washington, D. C.

HARRY BELKNAP.

Photo by Thomas A. Slater, Boston, Mass.

Those Present at Dinner to Ex-Chief Henry A. Fox, Boston

Masons Honor Mendelssohn

Paxton Mendelssohn, widely known fire buff, has been honored by Masonry and will probably become a thirty-third

Paxton Mendelssohn

degree Mason next September when the Supreme Council meets in Milwaukee. He has been nominated for this honor.

He has gone through the various subofficerships of the Masonic Temple Association of Detroit, and at present is President of the organization which has control of the $8,000,000 Masonic building. He is a past-President of the Board of Trustees of the Scottish Rite in Detroit. Mr. Mendelssohn entered the order in 1911 and has been active in it ever since, particularly in committees and in Board of Trustees work.

Systematic Plans of Assistance

(*Continued from page* 565)

or village, it frequently happens that the Chief and some of the ablest men in the department respond with the apparatus giving aid; many times practically the entire personnel responds, thus greatly sacrificing the efficiency of the department to the town or village, and jeopardizing the property which is entitled to protection.

System of Covering in Should be Adopted

In towns or villages maintaining only one piece of apparatus, no outside response should be permitted, except to adjoining municipalities, and then only where they have an agreement with a nearby town or village to "cover in" immediately in case of fire.

The infrequency of fires in small towns and villages is something considered by those in authority, but it must be remembered that there is always the danger of the unexpected happening when least prepared. It very often occurs that after reaching the scene of a fire the apparatus is of no value, especially when there are insufficient water facilities.

Chief officers should remember that as soon as the services of the apparatus can be dispensed with, it should be returned to their own districts and placed in service without delay, and should not permit members of the department to stay at the scene of the fire any longer than necessary.

Some Chiefs have suggested that such service should be paid for, and if not, no assistance will be given. This, in my opinion, is not a practical solution of this problem, as one never knows when he will require aid himself.

Some Plan of Action Should Prevail

I believe that chief officers and fire officials of adjoining counties and municipalities should have an organization where their common problems could be fully discussed, and a well thought out plan of action decided upon, so that when calls for aid are received there will be no misunderstanding.

Under such plans, consideration should be given to the promtness with which such aid could be extended; whether the equipment is suitable to give effective assistance; if it is equipped with standardized hose and hydrant connections; if it carries adapters by which such connections can be made to systems; to whom to report; from whom to take orders; how and where to operate; and finally, whether other companies would cover territories left unprotected.

That some predetermined plan of action be decided upon is very essential as companies responding may not be familiar with the streets; size of water mains; location of and operation of hydrants, etc.

In conclusion, I believe that volunteer departments can give very effective aid to paid departments in case of large spreading fires, not only by assisting in their extinguishment, but also by covering unprotected territory.

(From a paper read before the annual convention of the Eastern Association of Fire Chiefs and also before the Westchester County, N. Y., Fire Chiefs Emergency Plan.)

Chief Murl Woods Dead

Murl Woods, Chief of the Excelsior Springs, Mo., Fire Department for the past seven years, died on December 1 at the age of forty-five. He is survived by his widow and five sons.

Everett, Mass., to Have New Building

The cornerstone of the new fire alarm headquarters building at the junction of Ferry and Elm Streets, Everett, Mass., was laid on October 31 by Mayor Frank E. Lewis. Speakers included Chief James J. Evans and Fire Commissioner John Corbett. A drill tower will be constructed in the rear of the fire alarm building.

HARRY BELKNAP.

Horse Show Adds to Pension Fund

A horse show, witnessed by large crowds, was staged at the Arena for the benefit of the St. Louis Fire Department pension fund. It was the St. Louis National Horse Show and was one of the outstanding shows of its kind in the country.

Chief John J. O'Boyle, attired in silk hat and formal dress, presented blue ribbons to the winners.

Department and Other Reports Received

St. Louis Salvage Corps—Sixty-first annual report of the Underwriters' Salvage Corps of St. Louis, Mo., eleven pages.

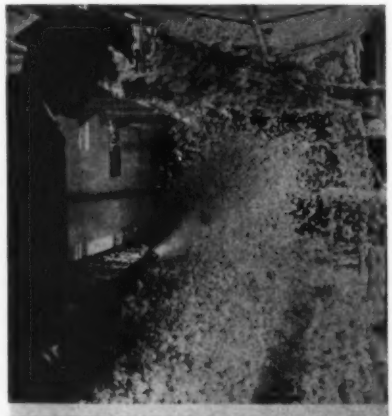
Shanghai, China—Annual report of the Fire Brigade, Shanghai, China; nineteen pages, illustrated.

Los Angeles, Cal.—Forty-ninth annual report of the Los Angeles, Cal., Fire Department; fifty-five pages, illustrated.

Fitchburg, Mass.—Annual report of the Fire Department, Fitchburg, Mass.; twenty pages.

Maritime Fire Chiefs' Association—Book of the twenty-second annual convention of the Maritime Fire Chiefs' Association, Kentville, N. S.; illustrated, sixty-four pages.

Melbourne, Australia—Report of the Metropolitan Fire Brigades Board, Melbourne, Australia.



Foam Protects a German Liner

Two German motorships of the North German Lloyd, on service to the Far East, have been equipped with a two-solution foam system for fire protection. The lines on the pipe are always charged. By connecting the hose line and opening the proper valves, the two solutions mix in a single line, and emerge from the nozzle as foam. During a fire drill, as the boats cross the equator, the officer in charge stages a demonstration for the benefit of the passengers so that some of their worries of what would happen if fire broke out, may be dispelled. The demonstration illustrated took place on the "Potsdam."

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WARM
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VERY DURABLE!

No. 27B Coat $8.50
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(Longer Coats Cost a Little More)

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INDIAN FIRE PUMP

WORLD'S BEST GRASS, BRUSH AND SPOT FIRE FIGHTER!

Strong brass carrying handle. Carrying weight evenly distributed close to top of back. Prevents rubbing and chafing. Tanks do not have to be propped up when filled with water. Tanks have heavy solid brass bottom to prevent rust or corrosion. All seams double locked and soldered.

Form-fitting ventilated tank allows continuous circulation of air between carrier's back and water tank. This prevents dampness, moisture and cold from water tank reaching the wearer's back. Complete freedom allowed arms and hands.

5 gal. metal tank may be carried FILLED on truck ready for use. Extra strong construction, will not leak, puncture or rot.

USES ONLY CLEAR WATER—NO CHEMICALS

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Something's Missing Here

. . . It Means REAL FIRE PROTECTION

THE finest job of fire prevention is being done by firemen who make industrial inspections. The uniformed man who is alert and who knows his work has it in his power to save thousands of dollars in fire losses in the plants which he visits.

If the responsibility of inspection work falls upon you, remember this — *That any fire hazard involving flammable liquids or electrical equipment can best be protected by LUX extinguishers.*

Take the picture above. Here is an oil storage room. You can't have hit-or-miss fire protection here. This calls for LUX carbon-dioxide extinguishers. LUX snow-and-gas, fastest known extinguishing agent, can handle flammable liquid fires that no other type of extinguisher can cope with. Suppose the fire involves running oil or gasoline in a flaming torrent from a drum five feet from the floor! A fast-expanding cloud of LUX snow-and-gas will reach every smallest inch of the fire area . . . will snuff the blaze out in a few seconds.

The storage of flammable liquids is a common industrial fire hazard. Whenever you find this hazard — Look For LUX. In this case anything less than LUX protection is no protection at all.

Write for your FREE copy of "The Characteristics of Carbon-Dioxide as a Fire Extinguishing Medium".

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Give You REAL PROTECTION in Frigid Weather

To be on the job every day—watch your health. To protect and insure your health—buy BODY-GUARD Clothing. It will keep you dry and warm in all kinds of weather. Thousands of firemen have been wearing these suits—some for as many as 15 years.

Made of water repellent canvas duck outside, rubber interlining and warm wool lined, these coats will give you greatest protection per dollar. See one on approval. Write for details and purchase terms.

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AFTER all, a good badge is a sensible investment. Not everyone can wear a fireman's emblem of service. You men who have devoted your lives to saving life and property should be proud of your badge.

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You'll Feel
A HEAP SAFER
with
COVER'S DUPOR
Two-Sponge
Practical Pocket
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$24 Dozen
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Station A
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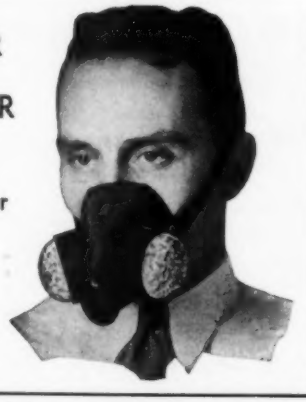

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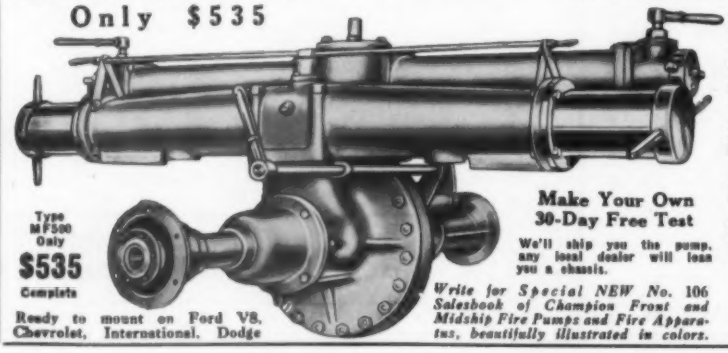

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Ready to mount on Ford V8, Chevrolet, International, Dodge

Make Your Own 30-Day Free Test

We'll ship you the pump, any local dealer will loan you a chassis.

Write for Special NEW No. 106 Salesbook of Champion Front and Midship Fire Pumps and Fire Apparatus, beautifully illustrated in colors.

A totally new achievement in centrifugal Fire Pump design by Darley engineers.

Weighs only 375 lbs.—specially engineered and built for mounting on 1½-2 ton standard truck chassis without overloading.

Direct drive off chassis propeller shaft. No gears. Simple and dependable. Nothing to go wrong.

Unconditionally Guaranteed for 10 Years.

Meets all requirements of the Underwriters and all State Actuarial Bureaus for 500 GPM Fire Pumps. But actually delivers 600 GPM at suction and 800 GPM from fair hydrants. Automatic Vacuum Primer.

Easily installed without mutilating chassis. Pump fits into the space now occupied by short shaft which connects propeller shaft with transmission. Installation completed in an hour's time.

You can mount the new Champion Midship Fire Pump temporarily on a chassis and make your own tests. If the Champion does not perform fully to your expectations it can easily be removed from chassis and we want you to return it and we will send your money back.

Complete, ready to mount, with Gauges, Booster Valves, etc.

W. S. DARLEY & CO.
2810 Washington Blvd. Chicago, U. S. A.

Manufacturers' Announcements

Gamewell Reports Better Business

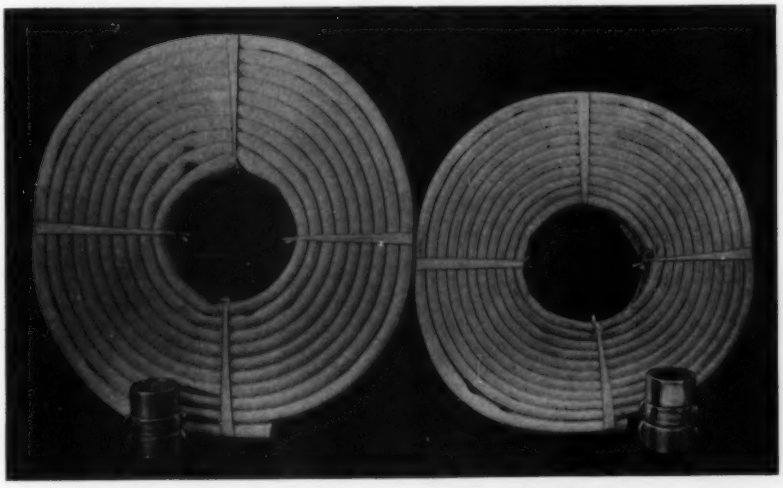
V. C. Stanley, President, Gamewell Company, Newton, Mass., reports, "Gamewell has been showing a steady increase in bookings for a number of months culminating, during October, in the largest volume received in any month since 1929.

"All of the lines have shared in this recovery, resulting in a number of large contracts being placed for sprinklers, motors, traffic signals and municipal fire and police signalling systems. Sacramento, Cal., has just awarded Gamewell a contract for a complete new signalling system under a PWA project, amounting to $177,000. There has been a marked improvement in the purchasing power of the average municipality, which is making possible appropriations for long-needed equipment.

"The restriction of buying power for six years has resulted in a walled-up need for normal replacements and betterments. Continued good operating conditions are anticipated."

Addition to Goodrich Line

A double jacket fire hose, claimed to be more flexible, is being marketed by the B. F. Goodrich Company, Akron, Ohio, under the name of Highflex. The makers say that refinements in weaving which have made it possible to reduce the wall thickness 1/16-inch, have resulted in a hose eighteen per cent lighter. Through the use of a slightly oversize tube, the outside diameter of the hose is the same as other hose and permits the use of standard couplings. The 2½-inch hose may be had with or without the Goodrich Hydroseal moisture resisting treatment.



Roll of Highflex Hose Compared in Size with Other Goodrich Hose of Same Length

Arkansas Firemen Meet

The fifteenth annual convention of the Arkansas State Firemen's Convention was held at Little Rock, Ark.

There was considerable discussion regarding the existing state civil service law. Chief W. J. Springer, Texarkana, pleaded for a continuance of the present law for at least two years in order to give it a fair test. Mayor R. E. Overman, Little Rock, said that in his belief, civil service had improved the efficiency of the local department.

The meeting was held during the convention of the Arkansas Municipal League.

Julius Pearse, Denver, Dead

Julius Pearse, for more than thirty years associated with the fire field, died at the age of fifty-three, following an illness of three years.

The Late Julius Pearse

His late father, Julius Pearse, Sr., was Chief of the Denver Fire Department, and when the Chief retired from the service, he founded the Julius Pearse Fire Department Supply Company in 1908. Upon the death of ex-Chief Pearse in 1918, the son assumed active management of the company.

The company was purchased in 1928 by the American - LaFrance - Foamite Corporation, and Mr. Pearse went in the employ of the purchaser as District Manager. He also was District Manager for the Eureka Fire Hose Division of the U. S. Rubber Products, from 1914 to 1932.

He was the guiding hand in the staging of the "Burning of Denver," an open air spectacle, that showed the operation of the Fire Department. A stage setting, to represent the city, was ignited at a night show, and made a long-remembered spectacle.

Mr. Pearse was born in Denver. He is survived by his widow, three sisters and a brother all of Denver.

Phelan New Chief of Pittsburgh

Nicholas A. Phelan, who has had a rather stormy career in the Pittsburgh, Pa., Fire Department, has been appointed Chief to fill a post that has been vacant for nearly a month. This is his second restoration to the city payroll.

Chief Nicholas A. Phelan

It was his political independence that got him into disfavor. During the regime of the late Mayor Kline, he was forced to retire on a pension. Former Mayor William M. McNair restored him as Deputy Chief, but when the officer later refused to take a demotion, he was dropped. Now Phelan is back as head of the department, the second Chief to be appointed in a short time since the retirement of Chief Richard Lee Smith.

New Fire Apparatus

A number of fire departments have added new apparatus within the past few weeks. Dubuque, Ia., has received a new pumper. A Seagrave city service truck was delivered to Lewisburg, Pa. A Quad type Seagrave unit was ordered by Canajoharie, N. Y., and delivery is expected sometime in February. Hastings-on-Hudson, N. Y., has ordered a Mack pumper. Financed by the PWA, Topeka purchased two enclosed type fire apparatus units. Davenport, Ia., has received three pumpers shipped by Peter Pirsch & Co., Kenosha, Wis.

Civil Service Urged for Chief

Capt. Lawrence A. Huntoon, Chief Inspector, Springfield, Mass., in addressing the Ware, Mass., Rotary Club Fire Department, advocated that in the interest of better fire protection, the Chief should be placed under civil service regulations.

He told of the danger of cutting department personnel and how following a reduction in its fire force, Fall River, Mass., suffered a fire loss of $15,000,000.

CLASSIFIED ADVERTISING

Bids Wanted, For Sale and Help Wanted $5 per inch. Position Wanted, $2.50 per inch.

Motor Pumper For Sale
PORT CHESTER, N. Y.

Bids received Jan. 18, 1937 up to 5 P.M.

Bids for the purchase of an automobile pump and hose car will be received by the Village Clerk of Port Chester, New York, at his office, 110 Willett Avenue, Port Chester, New York, until January 18th, 1937, at 5:00 o'clock p.m., and then opened by the Board of Trustees of said Village, at a meeting to be held at 8:00 o'clock p.m. on the same day. The successful bidder will be required to pay cash for said fire engine upon its delivery. Each bid must be enclosed in a sealed envelope endorsed "Bid for fire engine." The Village Trustees reserve the right to reject any and all bids.

Particulars may be obtained from the Village Clerk.

By order of the Board of Trustees,
Dated: December 2, 1936.
RICHARD X. O'CONNELL,
Village Clerk.

CONVENTION DATES

Dec. 16—FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Fire Headquarters, Katona, N. Y. Secretary, Walter M. Dawkins, P. O. Box 341, Port Chester, N. Y.

Dec. 16—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Next Meeting, Cos Cob, Conn. Secretary, Lieut. John Moehring, Toms Road, Stamford, Conn.

Jan. 27, 1937—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Springdale, Conn. Secretary, Lieut. John Moehring, Toms Road, Stamford, Conn.

Feb. 27, 1937—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Fairfield, Conn. Secretary, Lieut. John Moehring, Toms Road, Stamford, Conn.

June 15-18, 1937—ANNUAL FIRE COLLEGE. 13th Annual College, University of Illinois, Urbana. Director, Prof. L. H. Provine, of the University; Secretary, Asst. Chief Roy W. Alsip, Champaign, Ill.

June 22-24, 1937—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 15th Annual Convention, The Balsams, Dixville Notch, N. H. Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass. Chairman, Exhibit Committee, Chief Albert C. Melendy, Nashua, N. H.

July, 1937—PROVINCE OF QUEBEC POLICE AND FIRE CHIEFS ASSOCIATION. 5th Annual Convention, Rivière du Loup, Que. (Exact date to be decided later.) Secretary-Treasurer, Robert Harrington, Chief, Fire Department, McCail-Frontenac Oil Co., Ltd., Suite 8, Windsor Hotel, Montreal, Que.

Sept. 14-15, 1937—IOWA FIREMEN'S ASSOCIATION. 60th Annual Convention, Atlantic, Ia. Secretary, Paul A. Soener, Independence, Ia.

Oct. 5-7, 1937—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. 58th Annual Convention, Philadelphia, Pa. Secretary, Chief Charles E. Clark, Box 217, Wayne, Pa.

Oct. 12-14, 1937—ILLINOIS FIREMEN'S ASSOCIATION. 50th (Golden Anniversary) Convention, Danville, Ill. Secretary, Assistant Chief Roy W. Alsip, Champaign, Ill.

Oct. 19-22, 1937—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 65th Annual Conference, Headquarters, Biltmore Hotel, and Exhibits and Sessions, New Municipal Auditorium, Oklahoma City, Okla. Secretary-Treasurer, Ex-Chief James J. Mulcahey, 16 Franklin Ave., Yonkers, N. Y.; Chairman, Exhibits, Chief Ray Tiller, Waterloo, Ia.

Combustible Gases in Manholes

Results of a study to determine the general hazards of combustible gases and vapors in manholes are published in a U. S. Bureau of Mines paper on "Investigations During 1935 of Combustibles in Manholes in Boston, Mass.," by G. W. Jones, John Campbell, F. M. Goodwin and W. J. Huff. The survey was made with cooperation of the Edison Electric Illuminating Company of Boston, the Boston Consolidated Gas Company, and the New England Telephone & Telegraph Company.

Two types of gases were found present. One containing hydrogen, carbon monoxide, illuminates and methane, and were due to manufactured gas that found its way into manholes from leaks in gas mains and services. The other type of gas contained abnormally high percentages of carbon dioxide, varying amounts of methane and low percentages of oxygen. Contamination from more than one source was not uncommon.

The study, according to the findings in the report, show the value of systematic and continuous manhole testing to reduce the explosive hazard of gases in manholes.

The widespread danger of such explosions was demonstrated at Utica, N. Y. (see article, "Chief Sullivan Given Complete Charge of Utica in Emergency," FIRE ENGINEERING, May, 1936, page 183), and proved that such explosions can endanger an entire city, as it did in Utica on February 18, 1936.

The authors of the report are G. W. Jones, Chemist, Explosives Division, Pittsburgh Experiment Station, U. S. Bureau of Mines; John Campbell, Superintendent, Special Service Department, Edison Electric Illuminating Company, Boston; F. M. Goodwin, Vice-President, Boston Consolidated Gas Company, Boston, and W. J. Huff, Chief Chemist, Explosive Division, U. S. Bureau of Mines.

Chief Herring's Car Provided With Fog-Light

Chief Albert Herring, Murphysboro, Ill., has placed a S & M 50 candlepower fog light on his car and has found it very effective. He writes that they have some very bad fogs in the southern section of his state, and as he often answers calls to points fifty miles from Murphysboro, as a member of the Egyptian Fire Fighters Association, the light has proven of great value. Chief Herring is shown standing beside his car.

Chief McNulty, St. Petersburg, Retired

Chief J. T. McNulty, who was Chief of Fire Department, St. Petersburg, Fla., for twenty-three years, retired. He was pensioned at two-thirds of his salary.

March Written for Firemen

A march and song, "The Fire Fighter," has been completed by H. Lifson, Monticello, N. Y., a former member of the Czar's military band. The composition was played by the New York Fire Department Band on October 17 over station WNYC, and was played during the convention of the Hudson Valley Volunteer Firemen's Association convention at Middletown, in June.

5 Killed by Gas Blast

Butane gas, commonly used in rural sections where city gas service is not available, claimed five lives at Crowley, La., blew a house and store from their foundations, and fired three other buildings.

A tank of about 600 gallons of the liquified gas was being unloaded at a filling station. While taking the tank from the truck, the discharge pipe and valve were broken off. Butane gas is heavier than air, and the gas spread out in all directions and hung close to the ground. It entered nearby homes.

Those in the nearby houses were ordered to evacuate due to the possibility of an explosion. When the first explosion came as the result of the fumes coming in contact with a trash burner, all those living nearby had left for safer points, that is, all but five persons in a dwelling back of the filling station. In all, there were four explosions with the last being so severe that it was heard several miles distant.

The gas is manufactured at oil distilleries and the gas is changed into a liquid when it is compressed. It was because of the pressure within the tanks that the gas spread so rapidly.

In all well-informed circles they are talking about BUCKEYE Fire Department Equipment

Fig. 937—WARNING WHISTLE

The term "Warning Signals that Warn" as applied to Buckeye Fire Whistles and "Roto-Rays" has been will known for many years. For a piercing, attention-compelling sound-signal nothing can even approach this whistle. The "Roto-Rays" with its powerful revolving red lights instantly identifies a piece of fire apparatus or your officers' cars many blocks away.

And now well-informed circles are all talking enthusiastically about Buckeye Shut-off Nozzles that WILL NOT LEAK. There is a complete line of these nozzles. And they are giving amazing results everywhere they are in use.

The latest member of the Buckeye family is the expander which takes all segments from ¾" to 3" inclusive, and special sets of segments are available for attaching 2½" coupling to 3" hose.

Write for complete information on any—or all—of this equipment.

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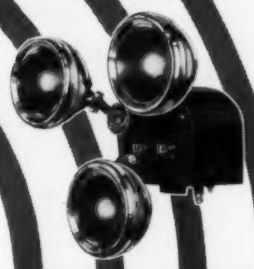

Fig. 931—ROTO-RAYS

Fig. 900—SHUT-OFF NOZZLE

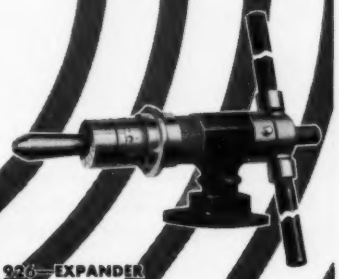

Fig. 926—EXPANDER

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WAX and GUM
TREATED—
Any type you want!

Quaker City makes a complete line of fire hose in a wide price range—but every foot of it is made to give you the best service you can get in its price class. For a complete list of brands and prices write us anytime—

QUAKER CITY RUBBER CO.
PHILADELPHIA, PA.

for **Smothering blazes**
Salvage work
Saving life!

Here is one of the most useful, most necessary items you could put in a firefighters hands. Absolutely flame proof, easy to handle, compact, comes in red metal container or durable knapsack. Put at least one on every truck.
ORDER NOW **$15**

United Pyro-Chemical Corp., 434 Union Street, Lynn, Mass.

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WITH or WITHOUT ELECTRIC BRAKE

DOUBLE ACTION
SIRENS
STREAMLINED
WITH FLASHING LIGHT AND A NEW TONE ROAR

CONSIDER THESE FEATURES:

- Streamlined beauty combined with rugged construction and durability.
- A Siren Roar combined with Flashing Rays of Light that can be heard and seen.
- Greased sealed ball bearings aid ease of operation. Precision standards.
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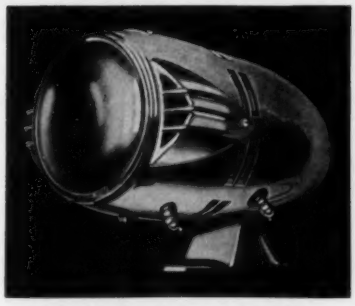

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MODEL "W"
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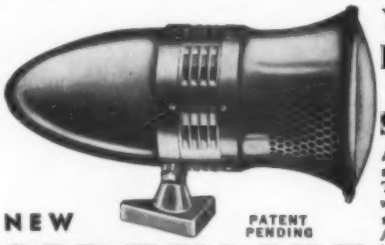

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A powerful siren and light combined. The most practical warning device for all apparatus. A precision built instrument, same sturdy construction as all Sterling Sirens. Write for bulletin.

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Combination No. 20 Siren and Powerful Red Flashing Light. Price—$49.50.

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Wishing you and yours the best Christmas and New year you ever had.
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Puts out chimney fires

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minutes and a package of SOOT-BLAST, sprinkled over flames at base of chimney, will put out any chimney fire.

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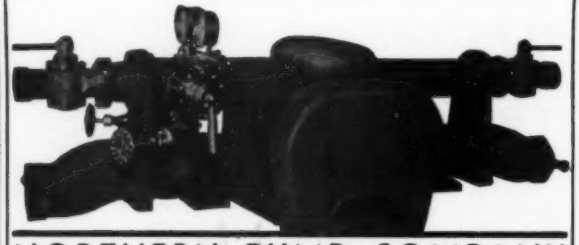

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MOTOR FIRE APPARATUS

Send in your Specifications for Prices

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ELMIRA, N. Y.

Fairfield County Chiefs Discuss Ventilation

A. C. Hutson, assistant engineer of the National Board of Fire Underwriters, was the principal speaker at the November meeting of the Fairfield County Fire Chiefs' Emergency Plan, held in the New Canaan Firehouse, Wednesday evening, November 25.

"Ventilation" was the topic of Mr. Hutson's discourse, but he also discussed the various types of fire, the slow burning type, which usually produces heavy smoke, and the fast burning fire, which can be easily ventilated. He cited the case of the warehouse fire in Brooklyn, which was the slow burning type and impossible to ventilate, because the smoke was so heavy that it could not rise and in fact went into the subway systems below the ground.

Following Mr. Hutson's talk, the question box was opened and he answered questions submitted.

Captain Frank Fox, Stamford, explained the instructors' school in Hartford, which he attended after being detailed by Chief Veit; 42 men started in the drill masters training school, the object being to train men to eventually drill the volunteer and paid firemen, so as to establish a uniform drill all over the state.

Captain Frank Osborne, Danbury, suggested that an attempt be made to obtain license plates with the letters "FD" for the exclusive use of firemen in the state. The Secretary was instructed to communicate with the Motor Vehicle Commissioner, getting his views on the matter.

The Secretary reported that, according to the latest figures of the State Insurance Commissioner, the state received $165,098.14 in 1935 from the two per cent fire insurance tax, compared with $150,813.19 received in 1934.

Addresses of welcome were given by Frank Leslie, President, New Canaan, also a selectman of that town and Chief Louis Drible.

The next meeting will be held in Cos Cob on December 16. The January meeting will be in Springdale and the February meeting in Fairfield.

Somerville Dedicates Drill Tower

The new James R. Hopkins Drill Tower of the Somerville, Mass., Fire Department was officially dedicated on the afternoon of November 14, with appropriate ceremonies.

Mayor Leslie R. Knox gave a luncheon in the New Hotel Woodbridge and there was a parade of Somerville firemen and visiting Chiefs, led by the band of the Metropolitan Firemen's Post, American Legion. Speeches were made by Mayor Knox, Chief John C. McNally, Deputy Chief Horace W. Hutchins, Jr., and others.

An exhibition drill was given by Somerville firemen under direction of Lieutenant William L. Murray, drill master. Firemen taking part were members of Engine Company No. 4, Ladder Company No. 1, and Rescue Company No. 1.

The drill tower is 58 feet high, constructed of brick. It was built as a WPA project and is named for the late Chief Hopkins, who retired in 1910 after serving as Chief of the Somerville Fire Department for thirty-eight years. The plans for the tower were drawn by Deputy Chief Hutchins.

The program of the exhibition drill was as follows:

No. 1—Raise a 30 foot straight ladder to the third floor and dog same to the window sill.
No. 2—Raise and extend a 45-foot extension ladder to the fourth floor, and dog same to window sill.
No. 3—Stretch 150 feet 2½-inch hose over the 45-foot extension ladder to the fourth floor window.
No. 4—Stretch 150 feet of 2½-inch hose from the pumper to Baker Cellar pipe on the platform.
No. 5—Stretch four lines of 2½-inch hose from pumper to Morse Deck Gun.
No. 6—Operate the aerial ladder for ventilation of a building, and as a water tower.
No. 7—Stretch two lines 2½-inch hose from pumper to ladder gun.
No. 8—Single pompier ladder chain to fourth floor.
No. 9—Four pompier ladder chain to fourth floor.
No. 10—Sliding life line with pompier belt from fourth floor.
No. 11—Rescue of man from fourth floor with pompier life belt.
No. 12—Rescue of man with Flexicote stretcher from fourth floor.
No. 13—Rescue of man from roof via the aerial ladder.
No. 14—Gas mask drill in smoke filled room.
No. 15—Demonstration of the smoke ejector.

The new tower is situated in the rear of the station of Engine Company No. 5, corner of Lowell Street and Somerville Avenue.

The Mayors of nearby towns and twenty-five Fire Department drill masters and other officials were the guests of Mayor Knox at the luncheon which preceded the dedication.

HARRY BELKNAP.

First Aid Blanket Fold

At a meeting of the Nyack, N. Y., Chapter of the American Red Cross, and at the request of Mayor William B. Page, the Fire Patrol Emergency Squad attended, with its equipment. The Mayor is Chairman of the local Disaster Unit of the A.R.C., and the patrol was previously appointed the mobile section of the local disaster unit. At the meeting were Maurice Redding, Assistant Director of Disaster Work, and Miss Jessie Logie, Zone Field Representative of A.R.C.

As part of his report on local disaster preparedness, the Mayor introduced C. Ray Ackerman, former Chief and Instructor in First Aid and Salvage Work of the department. Chief Ackerman told of the time when, in 1931, as Chief of the Nyack Fire Department, he was called to provide protection for candlelite pageants held in several local churches. As he considered that standard type extinguishers would be of little value if a little girl's flimsy dress became ignited, he considered a blanket as the best device for snuffing out the fire.

He developed a special method of folding a single bed blanket for such use, so that one with clothing on fire could be quickly covered by the blanket.

The blanket is folded in the center along the longer side. Next the open edge of the blanket is folded back so that it falls on the fold, and the same is done with the other open side. Now the blanket is folded in four sections along the long side.

The bottom edge of the folded blanket is folded up continuously so that there will be four equal folds. These folds are all made in the same direction, and when completed there will be a folded blanket approximately square in size. Only one side will have the exposed unfolded corner of the blanket. Take that corner and fold it back so that it falls on the diagonally opposite corner, similarly to making a dog-ear fold in a book. Now take the corner that was under the corner before it was folded back, and fold it in the same manner as the other fold. However, instead of this corner falling on top of the previous one, it is tucked under in the pocket made by the first diagonal fold.

In use, the blanket is held so that the middle fingers of each hand rest under the blanket. The thumb and forefinger of one hand holds the exposed unfolded corner, and the same fingers of the other hand, the diagonally opposite corner. When the middle fingers are released, the blanket will drop fully opened so that it can be quickly used. The blankets are carried on the truck in this folded position.

The demonstration so impressed the local A.R.C. representatives that they said the method would be called to the attention of officials at Washington.

Racine, Wis., Adds 1,000-Gallon Pumper

A 1,000-gallon Pirsch pumper has been delivered to Racine, Wis. The apparatus has a cab and a streamline hose body.

FALSE ALARMS

40 YEARS IN THE BUSINESS! I WANTA PENSION.
YOU'VE GOT A LOT OF BRASS, CHIEF!
THIS IS NO BUNK, DIRECTOR. I NEED A BED!
NEXT YR. F.D. BUDGET

—Drawing by "Art" Espey

Pension for Bed

Chief James E. Granger doesn't ask for very much for himself, but there are times when he is prompted to look out for his personal needs. That is why he wrote to the Safety Director, and that is why the official received the following note: "I respectfully report that the brass bed furnished for my use is in a dilapidated and worn condition due to age. This bed is over forty years old to my knowledge." He asked for a new bed and mattress for his quarters at No. 1 Fire House.

He was an orderly in a hospital, so he was sentenced by the judge for panhandling.

IN THE FAMILY

Just as sure as Monday follows Sunday, just so sure was the wife that her husband would come home drunk. In fact, he came home that way whenever he went out to the monthly firemen's meetings. This time she was determined that she would try a cure.

She had heard that it sometimes worked if the culprit was scared. So attired in a white sheet and carrying an electric light to resemble a ghost, she went in and shook her drunken husband.

"Wash that?" he murmured.

"I'm the devil," she replied.

"Shake hands, old horsh, I married your sister."

The old expression, "Dumb as a chorus girl," is no longer true.

NEW TERM

A Mayor's wife, a new fire station, and a fireman may not make much of a story, but when to this formula is added a pedigreed chow, then there is a story.

A new fire station was opened to the public. With the officials who attended the opening was the Mayor's wife and her pedigreed dog. While up on family history, the dog was down on manners. He just couldn't wait and selected a nice corner of the waxed floor.

Of course, the Captain who saw the incident couldn't act rashly. He motioned to a fireman and said in a low tone:

"Get a mop and wipe up that H_2O."

The fireman looked and then replied, "Captain, that ain't no H_2O, that's K_9P."

A police surgeon's theory is that one is sober if he is able to say, "Susie sat in the soup." The one who may not be so sober is Susie.

COMPLICATIONS

An elderly man had the job of caretaker of the station. One day he tripped over a length of hose placed on the apparatus floor and was laid up for several days.

The Captain met the man's son and asked:

"When will your father's leg be well, so that he can come to work?"

"It will be a long time, I think," answered the son.

"Why?"

"'Cause compensation's set in."

Pat's theory of relativity is: Don't let them live with you.

ROOM FOR TWO

There was an accident. A volunteer fireman on the way to a call had struck a roadster. The motorist was placed on the side of the road while the volunteer rushed for help. A pedestrian came along.

"Was there an accident?" he asked.

"Yes."

"Has anybody been along to get a report of the accident?"

"No," said the injured man.

"Then move over and let me lay alongside of you."

JUST A GOOD SPORT

A drive was being held for the community chest. The funds obtained would be used for meritorious local social work. The Fire Department Band was asked to assist at the show. It was to be assisted by entertainers.

The band leader thought he would make the trombone player jealous. He said:

"I was kissing our girl soloist last night to beat the band."

"You didn't beat the band," dryly remarked the trombone player. "They've been kissing her for days."

ASSISTANCE

A fireman had finished his tour of inspection at the boxing arena. Going home late at night he saw a man in the block where he resided, trying to insert a key into the keyhole.

Desiring to be of assistance, he went up to the inebriate and asked:

"Can I help you find the key hole, old man?"

"Thash all right, my frien'," said the other cheerily. "You jusht hol' the housh shtill and I can manage.

FIRST OF ALL, I'LL GIVE HIM A PAIR OF BRAND NEW SOCKS. THE REST'LL BE EASY!
PROSPERITY
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Dear Santa- I need renewed spirit and courage in 1937
Every Fire Fighter
MERRY CHRISTMAS! HAPPY NEW YEAR!
FIRE ENGINEERING
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Send for our—

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Sake's alive,
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Gee Whiz

and your favorite surprise expression when you see what the BI-LATERAL FIRE HOSE COMPANY, Chicago, Ill., will soon offer the firefighters, which we know they will approve.

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LIFE NETS
Standard of the Fire Service
CORY - PATTERSON MFG. COMPANY
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Relaying Discussed by Westchester Chiefs

A round table discussion on relaying by the use of two engines at fires was a feature of the regular meeting of the Fire Chiefs' Emergency Plan, held at Fire Headquarters, Pelham Manor, N. Y., on the evening of Wednesday, November 18. The Plan was welcomed by Branch P. Kerfoot, President of the Board of Fire Comissioners, Pelham Manor. Chief John J. Brennan, Pelham Manor, reread by request a paper he had originally presented before the last annual convention of the International Association of Fire Chiefs, at Toronto, Ont., on "Do Mutual Aid Systems Really Function?" In this paper, Chief Brennan spoke of the formation of the Plan in 1928 and described its methods and manner of functioning. He called attention to the fact that, when calling for aid, the Chief knows, from an inventory formulated by the Plan, what apparatus is available within a radius of five or ten miles, and he can request not more than two or three pieces from any particular location, so that at no time is any community stripped of sufficient apparatus to endanger proper fire protection to its own locality. Chief Brennan referred to the bill introduced by the Plan in the New York Legislature, which became a law on April 8, 1931, and which gave permission to cities, towns, villages and Fire Districts to adopt ordinances permitting their respective Fire Departments to aid another municipality. He pointed to the success of the Westchester Chiefs' Plan and that of the Fairfield County Plan in Connecticut as an answer to the question as to whether mutual aid plans function.

In the discussion on the paper, the chart adopted by Chief Goff, of Oklahoma City, Okla., was shown by Chief Brennan.

(NOTE—*This chart was described and illustrated in* FIRE ENGINEERING, *for September*, 1935, *page* 375.—EDITOR.)

At the Round Table Discussion, the following questions were discussed by several of the Chiefs present:

1. Have you had any occasion to make use of "relaying" to reach scene of fire remote from water supply? Have you experienced difficulty in securing efficient hose streams under such conditions, and if so, what deductions have you made as to the causes?
2. If you have had occasion to relay, upon what basis did you determine the number of pumps to be used, their capacity and the relative length of hose between pumps?
3. What is a positive displacement pump? What are the types of positive displacement pumps in Fire Department use?
4. Assume that you intended to relay from moderate draft by means of three pumps of equal rated capacity, two of the centrifugal type and one of the gear or rotary type. Assume further, that the length of hose between pumpers and between last pumper and nozzles to be equal, in what position would you place each type pump, and why?
5. Assume that water supply from mains at scene of large residence fire is sufficient only to supply your pumps and lines. Assistance is required from neighboring departments and indications are that two more 2½-inch lines with 1¼-inch tips are necessary. A large pond from which suction may be taken lies 1,500 feet away. In calling for assistance, how many pumps, of what capacity and how much hose would you ask for?
6. Assuming you find it necessary to draft from a shallow stream or pond, what precautions would you observe in taking suction?
7. Have you had occasion to relay from one water main to another, or from one water system to another, and if so, what was the hook-up employed?

In discussing these questions, one Chief described a fire in which 1,400 feet of hose were laid across fields, with one engine at the hydrant and the other at the scene of the fire, with good results. In another case, 1,200 feet of hose were laid, the first pumper being of 750-gal. capacity and the relaying engine a 600-gal. In a third case, a 750-gal. engine pumped through 1,800 feet of hose to a 350-gal. pumper, which boosted through 600 feet to the fire.

There were 78 present at the meeting. Refreshments were served by the Pelham Manor Department after the meeting.

Restoring Frozen Hydrants to Service

(*Continued from page* 555)

ing on the dryness of the steam and the amount of superheat. Therefore, with a lesser amount of water, it is possible to conduct a greater amount of heat to the frozen section.

Depending on the type of steam thawing unit used, six or more hydrants may be thawed with one charge of fuel and water. Unless a hydrant is frozen solid, it may be thawed in a few minutes.

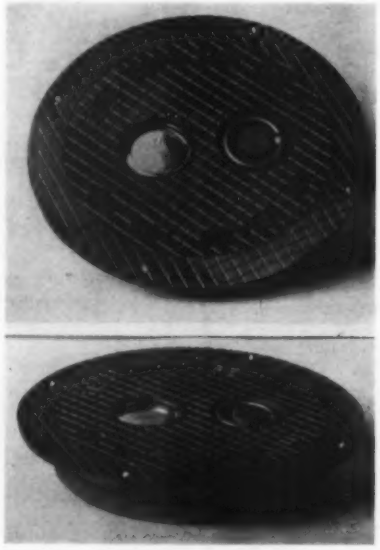
As a safeguard, the boilers are provided with a pressure relief valve, so that steam will "blow off" when a predetermined pressure is reached. This is important, for the valve protects both the equipment and the men who operate it.

These steam thawing units have been so effective for frozen hydrants that a number are now being used by the New York Fire Department.

In deciding on the system of thawing to be used by a Fire Department, the officer must answer the question:

"Is it effective, and how fast does it operate."

Remember, fire will not wait! It will go crackling up the walls, while the gang of firemen at the corner are cussing at the hydrant that refuses to be thawed.



Hose Pipe Inlet

A form of cast iron scupper has been developed by Harry T. Armington, Sycamore, Ill., for use in buildings. These capped orifices are set in concrete floors and provide a means for directing cellar pipes to the floor below, as well as a way for water drainage. The cover provides a twelve-inch opening for the nozzle.

Ex-Chief Now Postmaster

Ex-Chief John W. Guire, Long Branch, N. J., a prominent figure at conventions, headed the civil service list for postmaster of Monmouth County, N. J.

A Correction

In the article on "A New Development in Resuscitation," published in the November issue of FIRE ENGINEERING, credit should have been given to Dr. Ralph Davis, Audubon, N. J., for much of the material incorporated therein. Dr. Davis has been interested in the field for many years, and has contributed articles on this new method of resuscitation to the technical press.

Chief Neely Overcome at Fire

Chief W. L. Neely, fifty-three years old, of the Statesville, N. C., Fire Department, dropped dead while fighting a fire here on the afternoon of November 15. Chief Neely was in the attic of the residence directing the firemen, when he was apparently overcome by the heat and smoke. He was dead when firemen got him out in the yard. A heart attack was given as the cause of his death.

Chief Neely had been connected with the Fire Department for about twenty-five years, having served as Assistant Chief for several years and as Chief for a number of years.

He is survived by his widow and ten children.

D. G. SPENCER.

Boston Band Entertains

The Boston Fire Department Band held an installation of officers, concert, entertainment, buffet supper, and dance on the evening of November 23 in the Ritz-Plaza Hall, Boston, Mass.

Fire Commissioner Edward F. McLaughlin and Chief Samuel J. Pope, of the Boston Fire Department, were guests. Others on the platform were District Chiefs William J. McCorkle, Daniel Hurley and Walter C. Glynn, and President Hulbig and Secretary Dower, of the Russell Fire Club.

The new officers of the band are William McNeil, President; John O'Neill, Vice-President; Chauncey W. Griffin, Treasurer; Jacob Spitz, Historian and Librarian, and Frank J. Marr, Sergeant-at-arms. A Gladstone traveling bag was presented to the retiring President, Hugh A. Shute, Roxbury.

HARRY BELKNAP.

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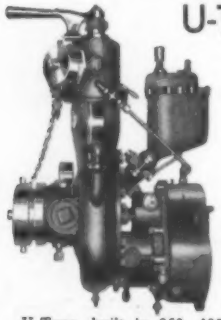
And thousands of Chiefs have found it easy to sell the "powers that be" on Barton Fire Pumps. For Barton Pumps enable you to have the FINEST, MOST DEPENDABLE of fire-pumping equipment, YET SAVE YOUR COMMUNITY HUNDREDS OF DOLLARS IN TOTAL FIRST COST.

COST IS LOW

First, because of simplified design, a Barton Centrifugal Pump costs MUCH LESS than other type apparatus. Second, because of Front-Mounting, a special expensive fire truck is NOT REQUIRED. Any size Barton Pump can be used on a standard truck and completely installed WITHOUT A SINGLE CHASSIS CHANGE—total cost but a few dollars for labor.

How can we best help you present this wonderful economy story to your community? Mail Coupon below and we will send you literature explaining Barton Pumps thoroughly. Or would you prefer to have our nearest representative call and talk to your people? No obligation, of course.



U-Type, built in 350, 400, 500 and 600-gallon sizes.

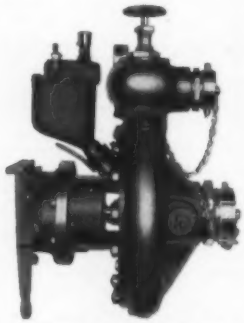
U-TYPE—*Gear Drive*

Shown at left is a Barton U-Type Fire Pump, Front-Mounted and ready for service. Every U-Type Pump is regularly equipped with BUILT-IN GEAR DRIVE which permits truck motor to operate at approximately ONE-HALF pump speed. With pump wide open and discharging against 250 pounds pressure, the motor loafs along under no strain. All sizes UNDERWRITERS' TESTED—all automatically primed. The finest centrifugal fire pumps on the market.

F-TYPE—*Direct Drive—Low Price*

A recent development for towns and villages which require relatively large capacity pumpers but have only limited amount of money available. They incorporate every U-Type feature and refinement except Gear Drive. All sizes UNDERWRITERS' TESTED—all automatically primed.

Also smaller Barton Fire Pumps, both centrifugal and rotary, AT STILL LOWER PRICES.



F-Type, built in 400, 500 and 600-gallon sizes.

MAIL COUPON

AMERICAN STEAM PUMP COMPANY
Battle Creek, Michigan

Please send complete information as checked below:

- ☐ U-Type Fire Pumps, Bulletin 75
- ☐ F-Type Fire Pumps, Bulletin 85
- ☐ Smaller Fire Pumps at still Lower Prices
- ☐ Have your nearest representative call.

NAME .....

ADDRESS .....

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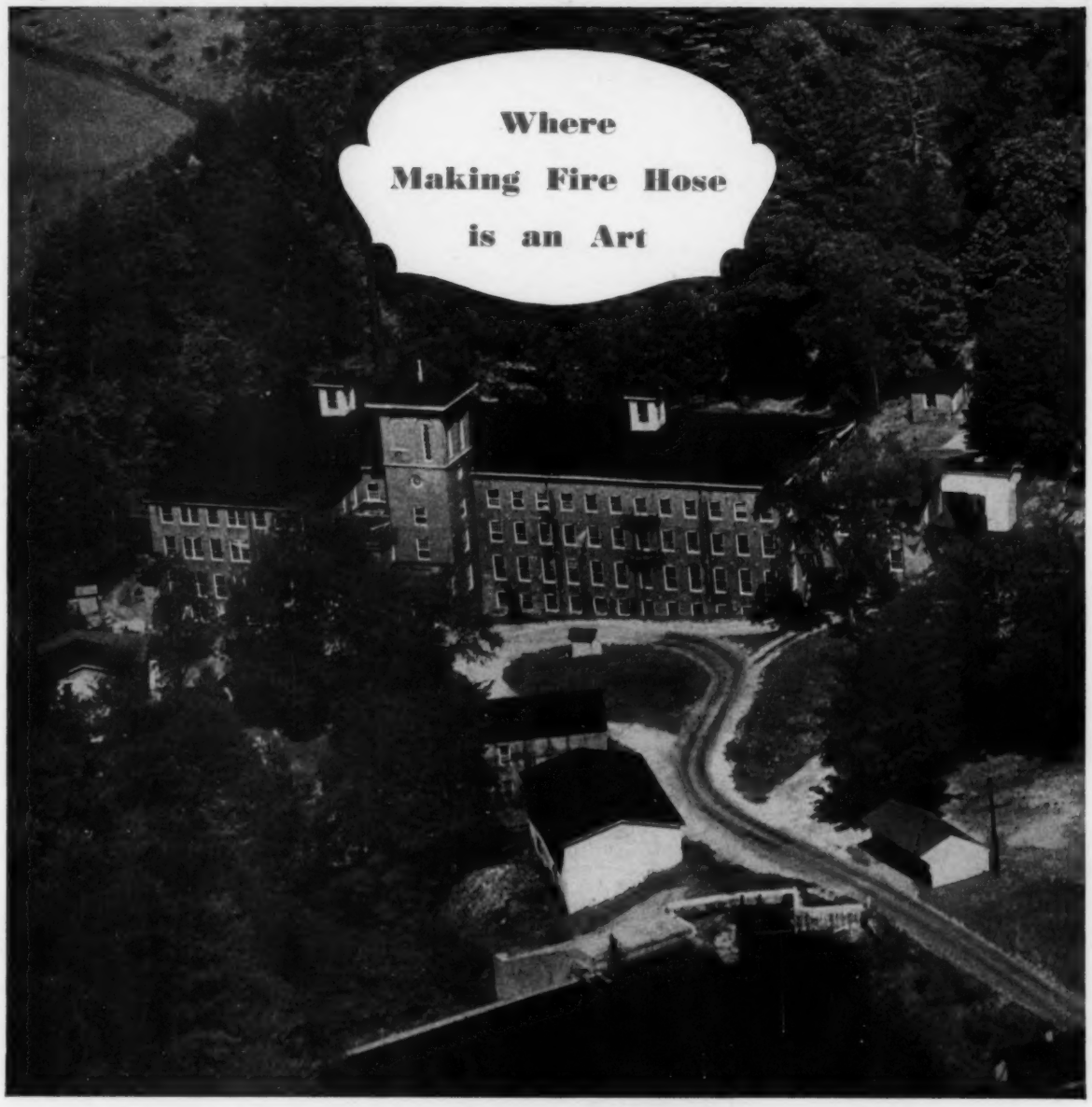


Aerial photograph of our factory at Sandy Hook, Connecticut, the only plant in the United States making municipal fire hose exclusively. Genuine Wax and Gum Treated Cotton Rubber Lined Fire Hose has been our specialty for fifty-five years.

FABRIC FIRE HOSE COMPANY

SANDY HOOK, CONN.

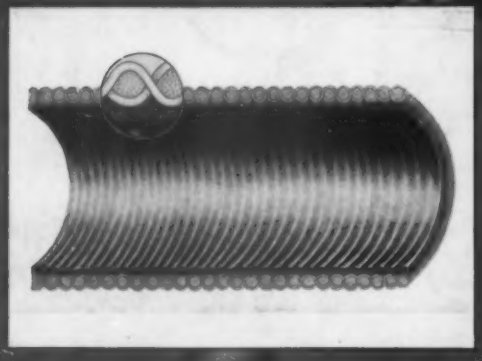
FABRIC FIRE HOSE

stream'line', *adj.* Of or pert. to a streamline; designating a motion or flow that is free from turbulence, like that of a free particle moving in a streamline; hence, *Mech.*, designating a surface, body, etc., designed to afford an unbroken flow of a fluid ..... esp. when the resistance to flow is the least possible.

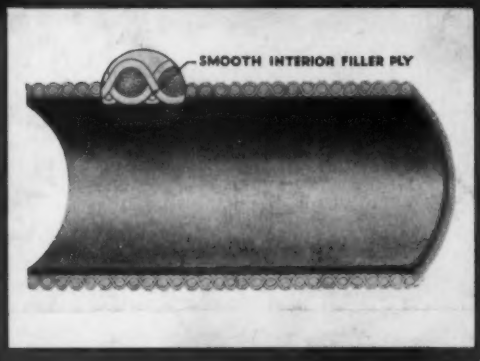
To give a more powerful fire-fighting stream, all brands of Eureka Fire Hose are now "Streamlined."

This is accomplished through two exclusive Eureka developments, namely the Smooth-Interior Filler-Ply and an improved Lap-Seam Rubber Lining.

Call in a Eureka representative. He will explain not only the advantages of "Streamlining" but also Eureka mildew proofing and new long-lived rubber lining and what they mean in the way of longer, more satisfactory service.



This shows how the rubber lining of ordinary fire hose recedes into the valleys of the inner jacket when subjected to hydraulic pressure, giving the waterway a washboard effect, which results in excessive friction loss.



In Eureka "Streamlined" Fire Hose the Smooth-Interior Filler-Ply Cord fills the valleys and eliminates the possibility of "washboarding." Eureka Smooth-Interior Filler-Ply Feature reduces friction loss to a minimum.

EUREKA FIRE HOSE

Division of United States Rubber Products, Inc.

EXECUTIVE OFFICES: 1790 BROADWAY, NEW YORK, N. Y.

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For Positive Protection of Life and Property — USE EUREKA!